ASTRO

Portable Video Signal Generator

# VG-882-A

Instruction Manual

Ver.1.00

Portable Video Signal Generator

# VG-882-A

## Instruction Manual

2011.5

Ver.1.00

ASTRODESIGN,Inc

# Contents


Introduction ..... vii

Safety precautions ..... vii

Contents of package ..... x

Chapter 1 Introducing the VG-882-A ..... 1

1.1 Overview ..... 1

1.2 Features ..... 1

1.3 Specifications ..... 2

1.3.1 General specifications ..... 2

1.3.2 Common specifications ..... 2

1.3.3 HDMI output ..... 2

1.3.4 Analog output ..... 3

1.3.5 External control ..... 3

1.4 Names of keys and connectors and their functions ..... 4

1.4.1 Front panel of the VG-882-A ..... 4

1.4.2 RB-1870, RB-1871 (optional accessories) ..... 4

1.4.3 Names of operation keys and their applications ..... 5

1.4.4 Rear panel of the VG-882-A (connectors and communication port) ..... 7

1.4.5 Names of connectors and their outputs and applications ..... 7

Chapter 2 Basic Operations (Executing and Saving Programs) ..... 9

2.1 Operating the main unit ..... 9

2.2 Executing sample programs ..... 9

2.2.1 Settings required for displays ..... 9

2.2.2 Program data structure ..... 10

2.2.3 Selecting the timing data ..... 11

2.2.4 Selecting the pattern data ..... 11

2.2.5 Selecting the actions ..... 15

2.3 Saving the program data ..... 18

2.4 Changing program names ..... 19

2.5 Group function ..... 20

2.5.1 Executing groups ..... 20

2.5.2 Creating and Saving Groups ..... 21

2.6 Automatic program execution ..... 23

2.7 Displays appearing on the front fluorescent display tube ..... 25

2.8 Display of interface output status ..... 26

Chapter 3 Selecting and Editing Timing Data ..... 27

3.1 Horizontal timing data editing ..... 27

3.1.1 Horizontal timing data ..... 27

3.1.2 Restrictions on the horizontal timing parameters ..... 27
3.1.3 Horizontal timing data setting procedure ..... 28
3.2 Vertical timing data editing ..... 30
3.2.1 Vertical timing data ..... 30
3.2.2 Restrictions on the vertical timing parameters ..... 30
3.2.3 Vertical timing data setting procedure ..... 32
3.2.4 Scanning modes ..... 33
3.2.5 TV modes ..... 33
3.2.6 Serration and EQP ..... 34
3.2.7 EQP-Fp and EQP-Bp ..... 35
Chapter 4 Selecting and Editing Pattern Data ..... 39
4.1 Color bar patterns ..... 39
4.1.1 Types of color bar patterns ..... 39
4.1.2 Customizing color bar patterns ..... 40
4.2 Gray scale patterns ..... 42
4.2.1 Types of gray scale patterns ..... 42
4.2.2 Customizing gray scale patterns ..... 43
4.3 Ramp patterns ..... 45
4.3.1 Types of ramp patterns ..... 45
4.3.2 Ramp pattern type settings and customizing ..... 46
4.4 Sweep patterns ..... 48
4.4.1 Types of sweep patterns ..... 48
4.4.2 Sweep pattern selection ..... 49
4.5 Monoscope patterns ..... 50
4.5.1 Types of monoscope patterns ..... 50
4.5.2 Selecting the monoscope pattern ..... 50
4.6 Raster patterns ..... 52
4.6.1 Types of raster patterns ..... 52
4.6.2 Raster pattern type settings and customizing ..... 52
4.7 Aspect ratio patterns ..... 54
4.7.1 Types of aspect ratio patterns ..... 54
4.7.2 Aspect ratio pattern type settings and customizing ..... 55
4.8 Checkerboard patterns ..... 57
4.8.1 Types of checkerboard patterns ..... 57
4.8.2 Checkerboard pattern customizing ..... 58
4.9 Image/OPT ..... 61
4.9.1 Types of image/OPT patterns ..... 61
4.9.2 Optional and image pattern setting ..... 62
4.9.3 9-marker (OPT No. 76) pattern setting ..... 63

4.9.4 3D pattern (OPT No. 101) setting ..... 65
4.10 □ × ABC Pattern ..... 72
4.10.1 Color settings ..... 73
4.10.2 Character patterns ..... 74
4.10.3 Crosshatch patterns ..... 75
4.10.4 Dot patterns ..... 77
4.10.5 Circle patterns ..... 78
4.10.6 Burst patterns ..... 81
4.11 Window patterns ..... 83
4.11.1 Types of window patterns ..... 83
4.11.2 Window pattern settings ..... 84
4.12 Cursor patterns ..... 87
4.12.1 Cursor settings ..... 87
4.12.2 Cursor operations ..... 90
4.13 Name/List patterns ..... 92
4.13.1 Name/List display ..... 92
4.13.2 Name list ..... 94
4.13.3 HDCP list ..... 96
4.13.4 HDMI list ..... 99
4.13.5 EDID list ..... 100
4.13.6 DDC/CI list ..... 103
4.13.7 CEC list ..... 104
4.13.8 Timing data list ..... 105
4.13.9 Image pattern list ..... 106
4.13.10 OPT-USER pattern list ..... 106
4.13.11 ARC pattern list ..... 106
4.14 Video inversion ..... 107

Chapter 5 Output Settings ..... 108
5.1 Common settings ..... 108
5.1.1 Setting the output interfaces to ON or OFF ..... 108
5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities ..... 109
5.1.3 Setting the aspect ratio ..... 111
5.1.4 Setting the output gradation (bit length) ..... 113
5.1.6 Setting the color difference coefficient ..... 115
5.1.7 Setting the analog video level ..... 116
5.1.8 Setting the digital video level ..... 117
5.1.9 Setting the audio level ..... 119
5.2 HDMI Output ..... 120
5.2.1 Connectors and pin assignments ..... 120

5.2.2 HDMI setting procedure ..... 121
5.2.3 Info Frame / Packet ..... 124
5.2.4 CEC ..... 142
5.2.5 HDCP（High-bandwidth Digital Content Protection） ..... 145
5.2.6 Multi-port HDCP/EDID/CEC Test ..... 150
5.2.7 EDID ..... 151
5.2.8 DDC/CI ..... 151
5.2.9 ARC（Audio Return Channel） ..... 152
5.3 Component output ..... 155
5.3.1 Common component signal settings ..... 155
5.3.1 VGA (D-Sub) output ..... 157
5.3.2 YPbPr output ..... 158
5.3.3 D5 output ..... 158
5.4 Composite output ..... 161
5.4.1 CVBS output ..... 161
5.4.2 Y/C (S-terminal) output ..... 161
5.4.3 Filter settings ..... 163
5.4.4 Functions superimposed over composite signals ..... 163
5.5 SCART output ..... 164
5.5.1 Connectors and pin assignments ..... 164
5.5.2 SCART setting procedure ..... 165
5.5.3 Filter settings ..... 167
5.5.4 Functions superimposed over SCART output ..... 167
5.5.5 Fast blanking signal ..... 167
5.5.6 Audio settings ..... 167
5.6 Analog audio ..... 168
5.6.1 Connectors and output signals ..... 168
5.6.2 Analog audio ..... 168
5.7 Digital audio ..... 170
5.7.1 Digital audio ..... 170
Chapter 6 Functions Superimposed Over TV Signals ..... 174
6.1 Macrovision ..... 175
6.1.1 Description and specifications ..... 175
6.1.2 Setting procedure ..... 176
6.2 Closed caption/V-Chip ..... 177
6.2.1 Description and specifications ..... 177
6.2.2 Closed caption settings ..... 179
6.2.3 V-Chip settings ..... 184
6.3 Teletext ..... 189

6.3.1 Description and specifications ..... 189
6.3.2 Setting procedure ..... 190
6.4 WSS ..... 194
6.4.1 Description and specifications ..... 194
6.4.2 Setting procedure ..... 195
6.5 CGMS-A/ID-1 ..... 197
6.5.1 Description and specifications ..... 197
6.5.2 Setting procedure ..... 198
Chapter 7 Action Settings ..... 200
7.1 Planes ..... 200
7.2 Window actions ..... 201
7.2.1 Scrolling ..... 201
7.2.2 Flickering ..... 203
7.2.3 Level up/down actions ..... 204
7.2.4 Level sequence action ..... 205
7.3 Graphic plane scrolling actions ..... 207
7.4 Character plane scrolling actions ..... 209
7.5 Scroll sequence ..... 211
Chapter 8 VG-882-A System Settings ..... 214
8.1 CONFIG Settings ..... 214
8.1.1 Beep setting ..... 214
8.1.2 Key lock setting ..... 215
8.1.3 INC/DEC Continuity setting ..... 216
8.1.4 INC/DEC interval setting ..... 216
8.1.5 Color depth setting ..... 217
8.1.6 SAMPLE RGB/YPbPr setting ..... 217
8.1.7 DDC clock setting ..... 217
8.1.8 Image - priority setting ..... 218
8.1.9 Image position setting ..... 219
8.1.10 Cursor coordinate setting ..... 220
8.1.11 Digital video level step setting ..... 221
8.1.12 RB-1870 CUSTOM Key 1/2 and RB-1871 CUSTOM Key 1/2 ..... 221
8.1.13 Operation mode at power-on ..... 222
8.1.14 AVMUTE operation mode settings ..... 223
Chapter 9 Other Functions ..... 224
9.1 Copying and erasing data ..... 224
9.1.1 Copying programs ..... 224
9.1.2 Copying user characters ..... 225

9.1.3 Copying user optional patterns ....226
9.1.4 Copying images ....227
9.1.5 Copying groups ....227
9.1.6 Copying auto executions ....228
9.1.7 Copying all data ....229
9.1.8 Erasing programs ....229
9.1.9 Erasing user characters ....230
9.1.10 Erasing user optional patterns ....231
9.1.11 Erasing images ....231
9.1.12 Erasing groups ....232
9.1.13 Erasing auto executions ....232
9.1.14 Erasing all data ....233
9.2 Short-cut keys ....234
9.3 Information ....236
9.4 Data initialization ....237
9.4.1 Initializing the system settings ....237
9.4.2 Initializing the short-cut data ....238
9.5 Internal memory formatting and data installation ....239
9.6 Adjustments ....242
9.6.1 Adjusting the video levels of the component output ....242
9.6.2 Adjusting the video levels of the composite output ....243
Chapter 10 Internal data ....244
10.1 Program data ....244
10.2 Optional pattern data ....288
10.3 User character pattern data ....291
10.4 Character pattern data ....296
10.5 Tables of standard signals ....304
Chapter 11 Restrictions ....310
11.1 Maximum Currency for DDC Power ....310
Chapter 12 LIST OF ERROR MESSAGES ....312
12.1 Media-related error ....312
12.2 General error ....312
12.3 HDCP-related error ....315
12.4 User-generated optional pattern-related error ....315

# Before Use

## Introduction

Thank you for purchasing the VG-882-A Portable Video Signal Generator.

This manual contains operating instructions, as well as precautions and other information. Note that incorrect handling may lead to accidents, so be sure to read this manual.
After reading the manual, keep it handy for future reference.

## Safety precautions

### ⚠ WARNING

#### General precautions

- **Do not subject the unit to strong impact. Never throw or drop the unit. This poses a risk of malfunction, rupture of the unit, overheating, or fire.**
- **Do not use the unit where it may be exposed to explosions or fire.**
- **If you are using the unit outdoors and hear thunder or see lightning, immediately turn off the unit, disconnect the power cord, and bring it to a safe place.**

#### Power cord

- **Hold the cord by the plug when disconnecting it.**
- **To avoid a risk of fire, do not bend the power cord by force or bundle it together.**
- **To avoid damaging the power cord and risking fire or electric shock, do not put heavy objects on the cord.**

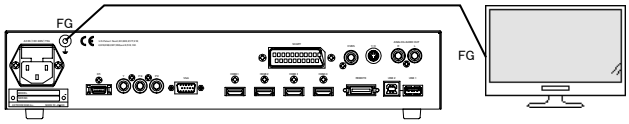
#### Foreign substances

- **Avoid spilling liquid in the unit, and do not let combustible substances or metal objects drop inside. Using the unit in this condition may cause fire, electric shock, or malfunction.**

# ⚠ CAUTION

## General precautions

■ **When connecting the unit to a display, use the supplied FG cable to ensure that the display and frame ground are shared. Using the unit without a shared frame ground may cause the unit to malfunction. Be especially careful when connecting the unit to a display under development.**




■ **When disconnecting the VG-882-A from a display, first remove the connection cables and then remove the FG cable.**

■ **Be sure to use the Power switch on the front panel to turn the power on and off. Powering the unit by connecting and disconnecting the power cable (with the Power switch in the ON position) may damage the internal circuitry.**

■ **Wait 10 to 15 minutes after powering the unit to ensure that the unit operates stably before operating.**

■ **Opening of the top panel of the unit is prohibited.**

■ **Never remove a USB memory device during memory access. This may cause the device to malfunction.**

■ **Note that using a USB memory device other than that included with the unit may prevent the unit from operating properly.**

■ **When using the USB memory device while connected to the USB2 port, be careful not to have the device stolen or damaged.**

■ **Avoid using excessive force when inserting or removing HDMI cables, as this may damage the cable or connector core wire.**

## Impact

■ **This is a precision instrument and, as such, subjecting it to impact may cause it to malfunction. Take special care when moving the unit.**

■ **Do not drop the unit.**

## Installation

■ **Install in a safe location with the unit oriented horizontally. Installing the unit with a vertical orientation may cause overheating and a rise in internal temperature that may result in malfunction.**

## In case of abnormality or problems

■ **If the unit does not operate properly, disconnect the power cable and contact your sales representative or the Astrodesign Sales Department.**

# Contents of package

This unit comes with the following items.
Be sure to use the appropriate accessories, as use of other items may result in malfunction.

## ■ Standard package

- VG-882-A main unit
- VG-882-A user's manual CD (this PDF): 1
- SP-8870 software installation CD (for Windows): 1
- SP-8870 user's manual: PDF version (included in SP-8870 installation CD)
- USB memory device **(operations confirmed)**
- Power cable: 1[*1]
- FG cable (1.5 m): 1[*1]

*1: Exclusively for use with the unit.

## ■ Optional accessories

- RB-1870[*2]:
  Remote control box for program editing
- RB-1871[*2]:
  Simplified remote control box. Enables program execution but not editing.

*2: This is the same item as the remote control box used for VG-870/871/870A/871A/870B/871B.
These accessories cannot be used with models other than those listed above, including the VG-882-A.

# 1 Introducing the VG-882-A

## 1.1 Overview

The VG-882-A is a portable video signal generator that can handle various types of output signals.
It can be used to perform all types of testing of interfaces built into digital TVs.

## 1.2 Features

### ■ Four HDMI outputs

The HDMI connector supports four channels. Testing can be performed for four outputs at the same time.

### ■ Various analog output types

Supports various analog interfaces (VGA, D-terminal, YPbPr, CVBS, Y/C, SCART).

### ■ Supports HDMI Version 1.4a additional functions (Option)

Testing of the Audio Return Channel (ARC) function added in HDMI Version 1.4a can be performed and 3D patterns (Frame Packing) can be output.
* Audio cannot be output, so audio received by ARC line cannot be output.
* HDMI Ethernet Channel (HEC) is not supported.

### ■ Windows-compatible editing and registration software (SP-8870) is included as a standard feature.

Program data in a USB-connected computer can be edited and registered, and signal output can be controlled.
* The USB driver supports Windows 2000, XP, and Vista.

### ■ Built-in sample data for each standard

One thousand types of timing and patterns are registered as built-in sample data.
These can be categorized by standard and usage, and the necessary data can be easily selected.

### ■ Create and register user programs

User-created program data can be registered to the internal memory of the VG main unit.
In addition, optional patterns combined with sample patterns and 256-color natural images can be registered.

# 1.3 Specifications

## 1.3.1 General specifications

| | |
|---|---|
| Supply voltage | AC 100 to 240V |
| Frequency | 50 / 60Hz |
| Power consumption | 52 VA MAX |
| Dimensions | 370 (W) × 66 (H) × 300 (D) mm (excluding protrusions) |
| Weight | Approx. 3.5 kg |
| Operating temperature range | 5 to 40°C |
| Operating humidity range | 30 to 80%RH (no condensation) |

## 1.3.2 Common specifications

| | |
|---|---|
| Dot clock frequency | 0.100 to 165.000 MHz |
| Horizontal frequency | Max. 300 kHz, 8192 dots |
| Vertical scan lines | Max. 4096 |
| Video memory | 4096 dots × 2560 H |
| Cutting pulse (Serration) | OFF/0.5H/1H/EXOR |
| Scanning | Progressive (non-interlaced), interlaced,<br>segmented frame, interlaced (sync) |

## 1.3.3 HDMI output

| | | | | | |
|---|---|---|---|---|---|
| HDMI1<br>HDMI2<br>HDMI3<br>HDMI4 | Connectors | | | HDMI×4 | |
| | DotCLK | | | 8-bit output | 25 to 165 MHz（TMDS CLK: 165 MHz） |
| | | | | 10-bit output | 25 to 165 MHz（TMDS CLK: 206.25 MHz） |
| | | | | 12-bit output | 25 to 150 MHz（TMDS CLK: 225 MHz） |
| | Colors, bit length (Color Depth) | | | 8-, 10-, or 12-bit output (supports formats for RGB, YCbCr444, and YCbCr422)<br>*** However, when set to 10- or 12-bit output, only the indicator can be displayed.** | |
| | Audio output | HDMI | L-PCM | Sampling frequency: 32, 44.1, or 48 kHz<br>Output frequency: 100 Hz to 20 kHz<br>*** When the sampling frequency is 32 kHz, the upper limit is 14 kHz.**<br>Bits: 16-, 20-, or 24-bit output | |
| | Audio input | HDMI ARC | | Sampling frequency | Fs = 32 to 192 kHz |
| | Copy protection | | | HDCP Ver1.2 | |
| | Additional features | | | Version 1.4a (DDC2B), xvYCC, CEC | |

### 1.3.4 Analog output

| | | |
|---|---|---|
| VGA | DotCLK | 5 to 165 MHz |
| | Colors, bit length | 8-bit output for R, G, and B |
| | Connector | Dsub × 1 |
| D5 | Resolution | HDTV, SDTV |
| | Colors, bit length | 8-bit output for Y, Pb, and Pr |
| | Connector | D-Terminal × 1 (supports D5 output) |
| YPbPr | Resolution | HDTV, SDTV |
| | Colors, bit length | 8-bit output for Y, Pb, and Pr |
| | Connector | RCA × 3 |
| CVBS Y/C | Resolution[*1] | NTSC-M/J/443, PAL (B/D/G/H/I) /M/Nc |
| | Colors, bit length | 8-bit output for Y, Pb, and Pr |
| | Connector | CVBS (RCA) ×1, Y/C (S-VIDEO) ×1 |
| | Additional features[*1] | Teletext, ClosedCaption, Vchip, Macrovision ([*2]) |
| SCART[*3] | Resolution[*1] | NTSC-M/J/443, PAL (B/D/G/H/I) /M/Nc |
| | Colors, bit length | 8-bit output for Y, Pb, and Pr and for R, G, and B |
| | Connector | SCART × 1 |
| | Additional features[*1] | Teletext, ClosedCaption, Vchip, Macrovision ([*2]) |
| AUDIO L/R | Output frequency | 100 Hz to 20 kHz (sampling frequency: 44.1 or 48 kHz)<br>100 Hz to 14 kHz (sampling frequency: 32 kHz) |
| | Output level | 0 to 2000 mV |
| | Connector | RCA × 2 |

*1 Some features may not be supported in the future due to optional TV features and TV timing signals.

*2 Macrovision is sold as a license.

*3 SCART output is sold as an option.

### 1.3.5 External control

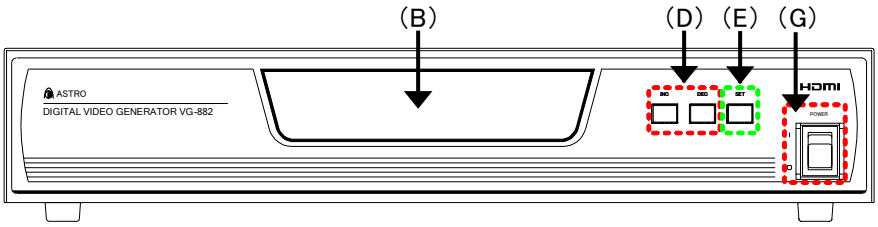
The operation tools of the VG-882-And their operation restrictions are listed in the table below.

| Control and editing | Operation restrictions | Notes |
|---|---|---|
| VG-882-A front panel | Program read-only | Executes registered programs. |
| RB-1870 | All functions can be operated. | Remote control for VG-870 Series and VG-882-A |
| RB-1871 | Program read-only | Simplified remote control for use with production line |
| SP-8870 | All functions can be operated. | For operation and editing with a computer |

# 1.4 Names of keys and connectors and their functions

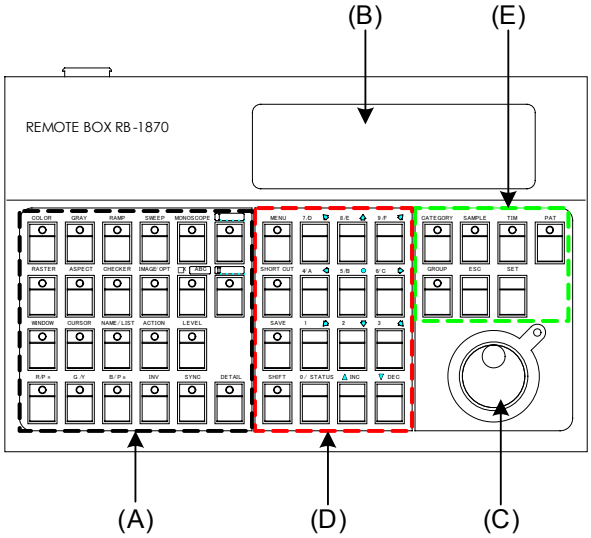
## 1.4.1 Front panel of the VG-882-A

This is the view of the front panel. For descriptions of the keys, refer to “1.4.3 Names of operation keys and their applications”.

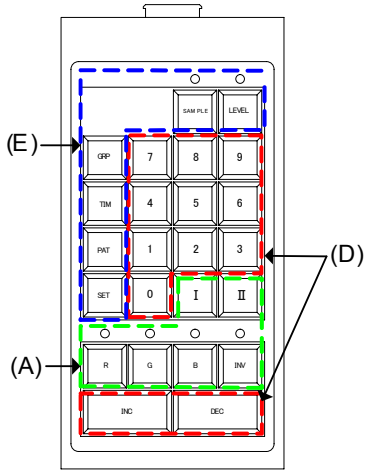



## 1.4.2 RB-1870, RB-1871 (optional accessories)

These remote boxes are used to edit and execute programs. For descriptions of the keys, refer to “1.4.3 Names of operation keys and their applications”.




**RB-1870**



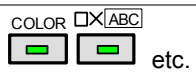
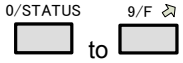
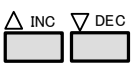

**RB-1871**

* The RB-1871 has operation limitations. The following operations can be performed.

- Program selection and execution
- Grouped program execution. (Group editing cannot be performed.)
- ON/OFF of R/G/B/INV keys
- ON/OFF of CUSTOM (I/II) keys (by default, I: HDCP, II: MUTE)
- Level adjustment (digital video level only)

* For detailed descriptions of the keys, refer to “1.4.3 Names of operation keys and their applications”.

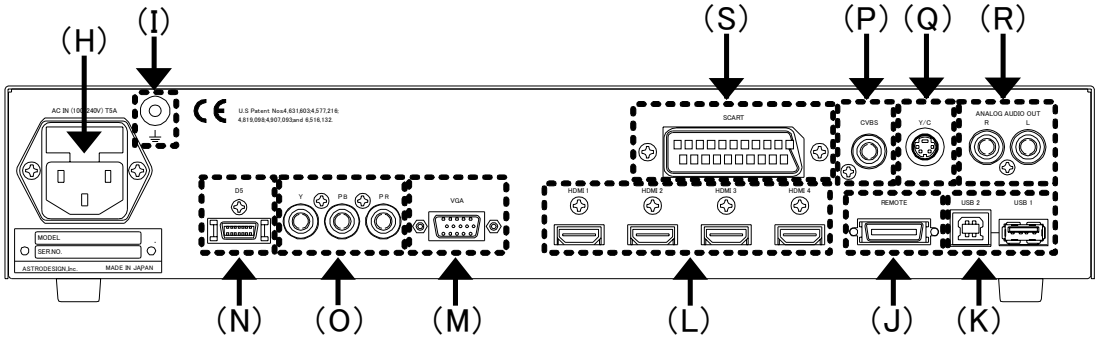
## 1.4.3 Names of operation keys and their applications

| | | | |
|---|---|---|---|
| (A) | Pattern keys |   etc. | Used to display and edit the patterns. |
| | Action key | | Used to set the scroll, flicker, and other functions. |
| | Level key | | Used to set the digital video levels, analog video levels, and audio levels. |
| | RGB channel on/off | etc. | Used to set RGB on or off. |
| | INV key | | Used to invert the black and white of the video levels. |
| | SYNC key | | Used to set the sync on or off. |
| | Detail key | | Used to perform the detailed settings of the pattern data, timing data, and other data. |
| | HDCP key (custom key) | | Used to set HDCP on or off.<br>(HDCP is a system for protecting content used by HDMI and DVI.) |
| | MUTE key (custom key) | | Used to set the audio on or off (muted).<br><br>*** When setting HDMI AV-MUTE**<br>This key operates as the HDMI AV-MUTE On/Off setting.<br>(Refer to “8.1.12 RB-1870 CUSTOM Key 1/2 and RB-1871 CUSTOM Key ”.) |
| (B) | Menu operation screens | | The menu screens are used to set and check the items displayed on the fluorescent display tube. |
| (C) | Jog dial | | This is turned clockwise or counterclockwise to select the setting items or parameters, change the level settings, etc. **(It provides the same control as the INC/DEC keys.)** |
| (D) | Number keys |   to | Used to input numerical values, select the menus, etc. |
| | INC/DEC |   | Used to select the setting items or parameters, change the level settings, change the program numbers, etc. **(It provides the same control as the jog dial.)** |
| | Menu | | Used to display the menu screens.<br>When it is pressed while a menu screen is already displayed, the initial screen is restored.<br><br>*** When the menu key indicator is lighted (selected)**<br>It is no longer possible to use any of the other keys. |
| | Shortcut key | | Used to move to a user-registered menu screen using minimal key operations. |
| | Save key | | Used to save the data which has been set. |
| | Shift key | | Used to input letters of the alphabet with the number keys. |

| | | | |
|---|---|---|---|
| (E) | Category key | | Used to select the internal sample data by category. |
| | Sample key | | Used to output the internal sample data.<br><br>* When the sample key indicator is off<br>The data in the USB memory device or stored in the internal memory can be used. |
| | Timing key | | Used to display changeable lists when only the output timing data is to be changed. |
| | Pattern key | | Used to display changeable lists when only the output pattern data is to be changed. |
| | Group key | | Used to display user-registered groups, etc. and create groups. |
| | Escape key | | This key can be used in the following situations.<br>• When canceling parameter selections or numerical value settings<br>• When returning the displayed menu screen to the previous hierarchical level |
| | Set key | | Used to enter the setting items and parameters which have been set. |
| (G) | Power switch | | Used to turn the power of the VG-882-A on and off. |

## 1.4.4 Rear panel of the VG-882-A (connectors and communication port)

This is the back view of the VG-882-A. For details of the output terminals, refer to **"1.4.5 Names of connectors and their outputs and applications"**.




## 1.4.5 Names of connectors and their outputs and applications

| | | |
|---|---|---|
| (H) | AC power socket | Connect the power cable here.<br>Voltage from 100 V to 240 V is supported. |
| (I) | Frame ground | Connect this frame ground terminal to the frame ground terminal of the unit which is connected to the VG-882-A. |
| (J) | Remote connector | This is used to connect the dedicated remote control box (RB-1870 or RB-1871). |
| (K) | USB 1 | This is used to update the version of the USB memory device. |
| | USB 2 | This is used to control the VG-882-A by SP-8870 or other software by connecting to a computer via USB.<br>For details, see the SP-8870 user's manual. |
| (L) | HDMI output | This enables output of the same image on four systems at the same time. (HDMI connector)<br>EDID, HDCP, CEC, and ARC functions are supported.<br>For details of the output terminals, refer to "**5.2 HDMI**". |
| (M) | VGA output | This enables output of analog component signals (RGB) and H/V separate sync. (D-sub connector, shrink type D-sub 15-pin) |
| (N) | D-Terminal output | This enables output of analog component signals. (Can be output up to D5.) |
| (O) | Component output | This enables output of YPbPr analog component signals.<br>(RCA connector) |
| (P) | CVBS output | This enables output of NTSC/PAL composite (VBS) signals.<br>(RCA connector) |
| (Q) | Y/C output | This enables output of Y/C signals. (S-Terminal) |
| (R) | Analog audio output | This enables output of analog audio (L/R).<br>(RCA connector) |
| (S) | SCART output | This enables output of NTSC/PAL composite (VBS) signals, Y/C signals, analog component signals (RGB), and analog audio.<br>(SCART connector) |

# 2 Basic Operations (Executing and Saving Programs)

The VG-882-A edits and saves program data and config data using the RB-1870/SP-8870.
The key operations of the main unit can be used only to select and execute programs.
Therefore, the descriptions in “2.2 Executing sample programs” and thereafter are described using the operations with the RB-1870.
For details on operating the SP-8870, refer to the accompanying SP-8870 user’s manual.

## 2.1 Operating the main unit

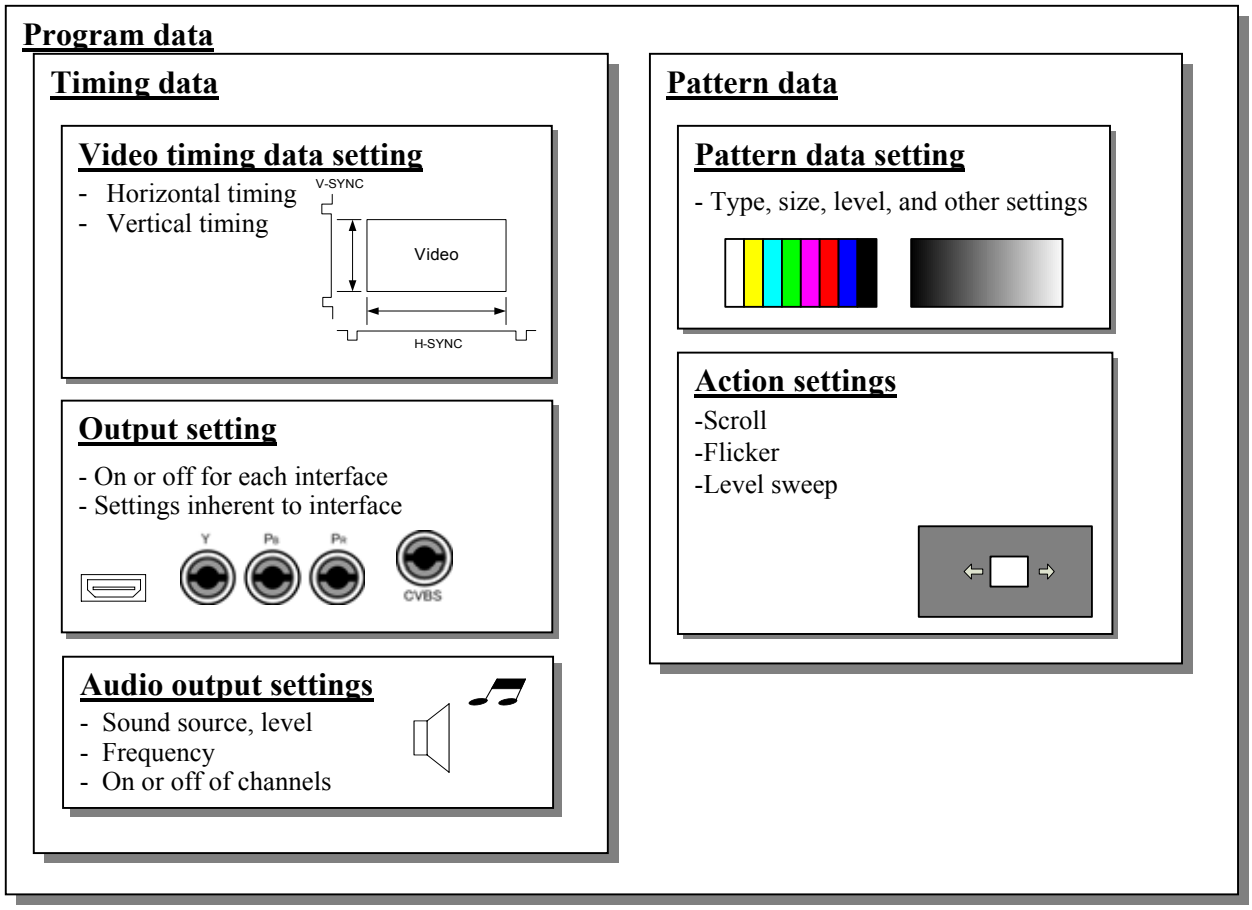
For the location of the front keys, refer to “1.4.1 Front panel of the VG-882-A”.

INC/DEC keys: Increment or decrement the program number.
SET key: Executes the selected program.

## 2.2 Executing sample programs

### 2.2.1 Settings required for displays

The **timing data** and **pattern data** must be set for the test patterns to be displayed from the generator.
The following items are set for these data.
In the case of this generator, the **timing data** and **pattern data** are collectively referred to as the “**program data**”.



## 2.2.2 Program data structure

The data output from the generator is managed using program data.
Program data is made up of pattern data, which is used to set data related to output images, and timing data, which is used to set data related to other output timing and output conditions. The details of the pattern data and timing data are as follows.

| Block | | Overview |
|---|---|---|
| Timing data | Program Name | Program name |
| | Timing（TIM） | Timing |
| | Output（TIM） | Output conditions |
| | Audio（TIM） | Audio output |
| Pattern data | Pattern（PAT） | Pattern |
| | Action（PAT） | Pattern action |

The generator comes with several types of program data, option patterns, and user character patterns as sample data.

| | Data units |
|---|---|
| Timing data | 1000 (1001 to 1999) |
| Pattern data | 1000 (1001 to 1999) |
| Option patterns | 200 (1 to 200) |
| User character patterns | 16 (F0H to FFH) |

The generator can register data to the **internal memory (approx. 90 MB)** and the USB memory.

| | Data units | |
|---|---|---|
| Program data | 1000 (1 to 1000) | |
| User option patterns | 200 (1 to 200) | |
| Images (image data) | 200 (1 to 200)<br>(Depends on image data size.) | |
| User character patterns | 16 (E0H to EFH) | |
| Number of characters of program name | 20 | |
| Number of groups | 99 (1 to 99) | (For details of groups, refer to “2.5 Group function”.) |
| Number of group data units | 98 (1 to 98) | |
| Number of characters of group name | 20 | |

**When the USB memory device is connected, the data registered in the USB memory becomes enabled and the data registered in the internal memory becomes disabled.**
**Image data in both the USB memory and internal memory can be enabled.***

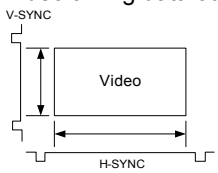
*** For details, refer to “8.1.8 Image - priority setting”.**

## 2.2.3 Selecting the timing data

There are two ways to select the timing data.

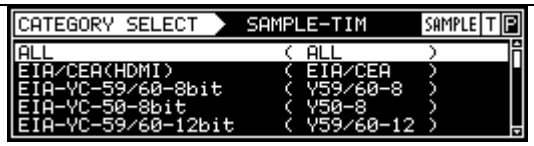
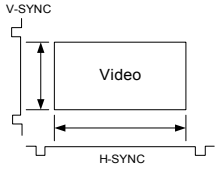
1) Input the timing data numbers directly.
2) Select the timing data from the categories.

### 1) Inputting the timing data numbers directly

| | | |
|---|---|---|
| ① | Input the timing data number (1001 to 1999) using<br>SAMPLE → TIM →<br>0/STATUS to 9/F (number keys). | Video timing data output<br>  <br>**The display patterns are not changed.** |

### 2) Selecting the timing data from the categories

The timing data of the internal sample data is classified by category such as EIA or VESA (PC).
Select the desired timing data from the category to which it belongs.

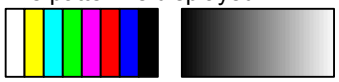
| | | |
|---|---|---|
| ① | CATEGORY → SAMPLE → TIM |  |
| ② | Select the category using<br>or △ INC ▽ DEC<br>and then press SET. | |
| ③ | Select the timing data using<br>and then press SET<br>or execute with △ INC ▽ DEC. | Video timing data output<br>  <br>**The display patterns are not changed.** |

## 2.2.4 Selecting the pattern data

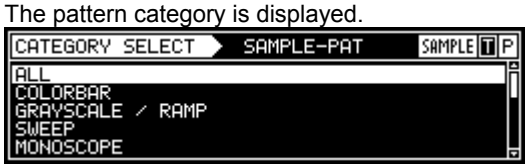
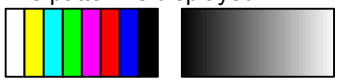
There are four ways to select the pattern data.

1) Input the pattern data numbers directly.
2) Select the pattern data from the categories.
3) Select the pattern data using the pattern keys.
4) Select the patterns for each program data.

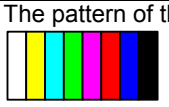
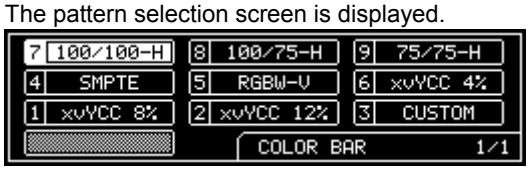
### 1) Inputting the pattern data numbers directly

| | | |
|---|---|---|
| ① | Input the pattern data number (1001 to 1999) using SAMPLE → PAT → 0/STATUS to 9/F (number keys). | The pattern is displayed.  etc. |

### 2) Selecting the pattern data from the categories

| | | |
|---|---|---|
| ① | CATEGORY → SAMPLE → PAT | The pattern category is displayed.   |
| ② | Select the category using ◯ or INC ▽ DEC and then press SET. | DIRECT-ALL No: 1001 SAMPLE T P<br>1001:Color Bar 100/100-H<br>1002:Color Bar 100/75-H<br>1003:Color Bar 75/75-H<br>OUTPUT 1001: EIA640x480P@59.94 [ 8bit ] |
| ③ | Select the pattern using ◯ and then press SET or execute with INC ▽ DEC. | The pattern is displayed.  etc. |

### 3) Selecting the pattern data using the pattern keys

| | | |
|---|---|---|
| ① | Select the key corresponding to the pattern, such as COLOR or □×ABC, to be displayed. | The pattern of the selected type is displayed.  Lighted: COLOR selected; off: COLOR deselected |
| ② | When setting details for the pattern or changing the pattern type. Press DETAIL. | The pattern selection screen is displayed.   |
| ③ | Select the pattern using ◯ or INC ▽ DEC and then press SET.<br>Select the pattern directly using 0/STATUS to 9/F.<br>Press 4/A to select 4 SMPTE. | The selected pattern is displayed. |

### 4) Selecting the patterns for each program data

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU ◯ or INC ▽ DEC, and then press SET. | |

② Select **Pattern (PAT)** using ◯ or △ INC ▽ DEC, and then press SET.

③ Select **Pattern/RGB/INV Select** using ◯ or △ INC ▽ DEC, and then press SET.

④ Select the item using ◯ or △ INC ▽ DEC and then press SET.

⇨ **Selected or deselected is displayed.**

The selected pattern is indicated by a check mark.

| | |
|---|---|
| **Color Bar** | Check this to select the color bar pattern. |
| **Gray Scale** | Check this to select the gray scale pattern. |
| **Ramp** | Check this to select the ramp pattern. |
| **Sweep** | Check this to select the sweep (sine wave) pattern. |
| **Monoscope** | Check this to select the monoscope pattern. |
| **Raster** | Check this to select the raster pattern. |
| **Aspect** | Check this to select the pattern for checking the aspect ratio. |
| **Checker** | Check this to select the checkerboard pattern. |
| **Image/OPT** | Check this to select the bitmap image, an optional pattern, or a moving image. |
| **Character** | Check this to select the character pattern. |
| **Cross Hatch** | Check this to select the crosshatch pattern. |
| **Dot** | Check this to select the dot pattern. |
| □ | Check this to select the frame pattern. |
| **×** | Check this to select the cross pattern. |
| + | Check this to select the center mark pattern. |
| **Circle** | Check this to select the circle pattern. |
| **Burst** | Check this to select the burst (continuous black and white) pattern. |
| **Window** | Check this to select the window pattern. |
| **Cursor** | Check this to select the cursor pattern. |

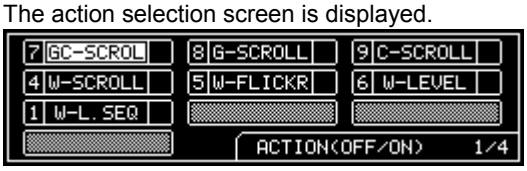
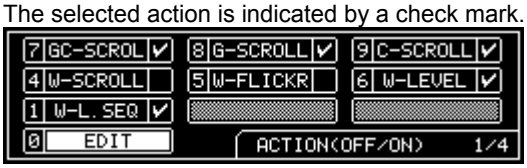
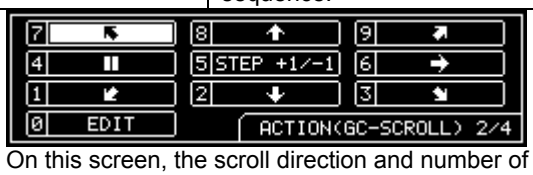
| | | | |
|---|---|---|---|
| | | **Name/List** | Check this to select the name/list function. |
| | | **R/Pr** | Check this to set the pattern R (red) or Pr output on or off. Normally this is checked. |
| | | **G/Y** | Check this to set the pattern G (green) or Y (luminance) output on or off. Normally this is checked. |
| | | **B/Pb** | Check this to set the pattern B (blue) or Pb output on or off. Normally this is checked. |
| | | **INV** | Check this invert the black and white of the video level. **(Cursor and Name/List are not inverted.)** |

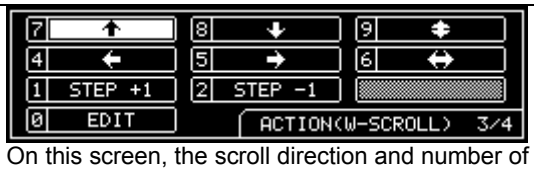
## 2.2.5 Selecting the actions

There are two ways to select actions.

1) Select the action using the action key.
2) Select and set the action for each program data.

**1) Selecting the action using the action key**

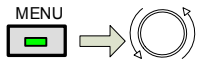
| | | |
|---|---|---|
| ① | Press ACTION key. | The action selection screen is displayed.<br>  |
| ② | Select the action using ◯ or △ INC ▽ DEC and then press SET. | The selected action is indicated by a check mark.<br>  <br>To select the window action, the window pattern must be displayed first. |
| | | **GC-SCROL** — Check this to scroll the graphic character pattern. |
| | | **G-SCROLL** — Check this to scroll the graphic pattern. |
| | | **C-SCROLL** — Check this to scroll the character pattern. |
| | | **W-SCROLL** — Check this to scroll the window. |
| | | **W-FLICKR** — Check this to flicker the window. |
| | | **W-LEVEL** — Check this to change the window level. |
| | | **W-L.SEQ** — Check this to execute the window level sequence. |
| ③ | Select the action using ◯ or △ INC ▽ DEC and then press SET. |  <br>On this screen, the scroll direction and number of steps are set when the **GC-SCROL**, **G-SCROLL** or **C-SCROLL action** has been checked. |
| | | ←,→,↑,↓ — Select these to scroll in the directions of the arrows. |
| | | ‖ — Select this to stop the scrolling temporarily. |
| | | **RESET** — Select this to return the pattern to its original position. **(It is displayed only while scrolling is stopped temporarily.)** |
| | | **STEP+1** — Select this to increment the scroll step by 1. |
| | | **STEP-1 (Press while holding down the SHIFT key.)** — Select this to decrement the scroll step by 1. |
| | | **EDIT** — Select this to perform the detailed scroll settings. |

<table>
<tr><td>④</td><td>Select the action using or INC<br>DEC and then press SET.</td><td colspan="2"> 

On this screen, the scroll direction and number of steps are set when the W-SCROLL action has been checked.<br><table><tr><td>←,→,↑,↓,◇,◇</td><td>Select these to scroll in the directions of the arrows.</td></tr><tr><td>‖</td><td>Select this to stop the scrolling temporarily.</td></tr><tr><td>RESET</td><td>Select this to return the pattern to its original position.<br>(It is displayed only while scrolling is stopped temporarily.)</td></tr><tr><td>STEP+1</td><td>Select this to increment the scroll step by 1.</td></tr><tr><td>STEP-1</td><td>Select this to decrement the scroll step by 1.</td></tr><tr><td>EDIT</td><td>Select this to perform the detailed scroll settings</td></tr></table></td></tr>
<tr><td>⑤</td><td>Select the action using or INC<br>DEC and then press SET.</td><td colspan="2">

On this screen, the level increment/decrement and direction as well as the number of steps are set when the W-LEVEL action has been checked.<br><table><tr><td>UP</td><td>Select this to increment the level.</td></tr><tr><td>DOWN</td><td>Select this to decrement the level.</td></tr><tr><td>STOP</td><td>Select this to stop the level change.</td></tr><tr><td>STEP+1</td><td>Select this to increment the level change step by 1.</td></tr><tr><td>STEP-1</td><td>Select this to decrement the level change step by 1.</td></tr><tr><td>EDIT</td><td>Select this to perform the detailed level settings.</td></tr></table></td></tr>
</table>

**2) Selecting and setting the action for each program data**

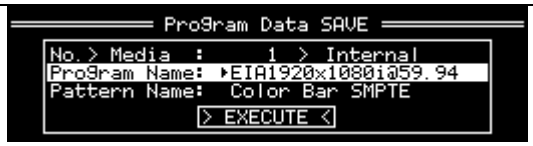
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Action (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select the item using or △ INC ▽ DEC and then press SET. | One of the following actions is selected, and the detailed settings are performed.<br>・Graphic Plane<br>・Character Plane<br>・Window<br>・Scroll Sequence<br>For details on the setting procedure, refer to "**Action Settings**". |

## 2.3 Saving the program data

Upon completion of program editing, save the data.

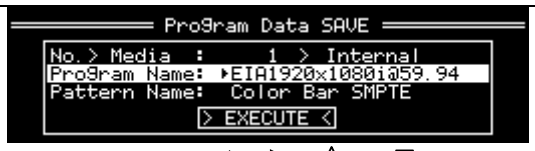
If the power is turned off without saving the data, the status before the changes were made will be restored.

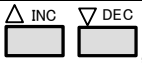
*** For details on editing the program names and pattern names of data to be saved, refer to "2.4 Changing program names".**

<table>
<tr><td>①</td><td>SAVE</td><td colspan="2"> 
</td></tr>
<tr><td>②</td><td>Select the item using ◯ or △ INC ▽ DEC<br>and then press SET.</td><td>No.</td><td>The program number is set here. (0001−1000)</td></tr>
<tr><td></td><td></td><td>Media</td><td>The internal memory or USB memory (USB) is selected here.</td></tr>
<tr><td></td><td></td><td>Program Name</td><td>Any name (consisting of up to 20 characters) can be allocated as the program name.</td></tr>
<tr><td></td><td></td><td>Pattern Name</td><td>Any name (consisting of up to 20 characters) can be allocated as the pattern name.</td></tr>
<tr><td>③</td><td>Select > EXECUTE < using ◯ or △ INC<br>▽ DEC, and then press SET.</td><td colspan="2">The program data is saved.</td></tr>
</table>

# 2.4 Changing program names

The name of a program or pattern can be changed and saved after the program is edited.

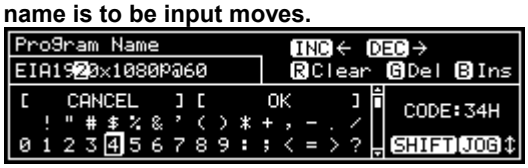
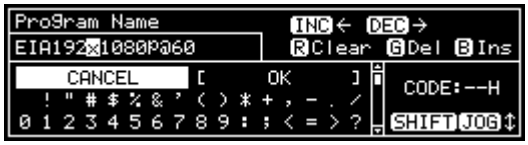
<table>
<tr><td>①</td><td> 

Select Name using or 

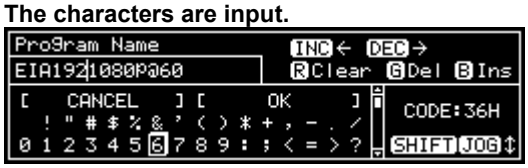
, and then press

.</td><td>
</td></tr>
<tr><td>②</td><td><u>To move the cursor to the location of the characters to be changed:</u><br>

(when moving to the left)<br>

(when moving to the right)</td><td>The cursor where the character of the name is to be input moves.<br> 
</td></tr>
<tr><td></td><td><u>To delete all characters:</u><br>
</td><td>All characters are deleted.<br>
</td></tr>
<tr><td></td><td><u>To delete one character:</u><br>
</td><td>The character at the cursor position is deleted.<br> 
</td></tr>
<tr><td></td><td><u>To switch between insert and overwrite:</u><br>

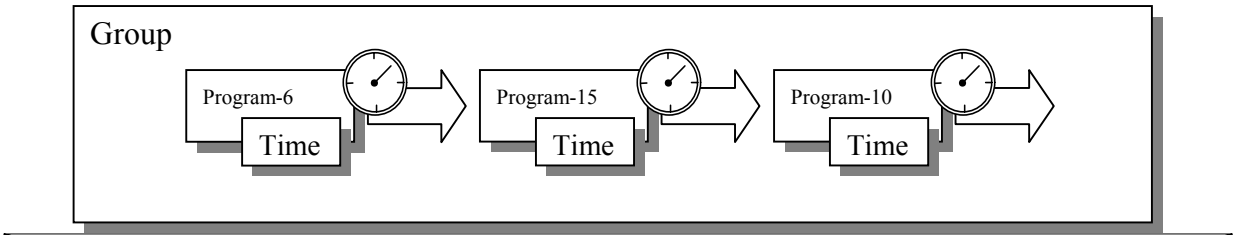
This switches between inserting and overwriting the characters.</td><td>This switches between inserting and overwriting the characters.<br>
</td></tr>
<tr><td></td><td><u>To input characters:</u><br>Select the characters using , and enter them using

.</td><td>The characters are input.<br> 
</td></tr>
<tr><td>③</td><td><u>To set the name:</u><br>Select OK using , and then press

.</td><td>The name is changed.</td></tr>
</table>

# 2.5 Group function

Registering programs as “**groups**” is useful when specific programs are to be combined and used repeatedly. Examples include times on a TV set inspection process when specific timing and pattern data are combined for repeated use.
It is possible to set not only the timing and pattern data execution sequence but also the execution time of each program.




* Up to 98 programs can be registered in a group. Up to **99 groups** can be registered.

## 2.5.1 Executing groups

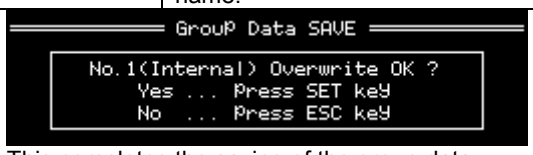
It is possible to execute combinations of frequently used programs and patterns that have been registered by the user.

| | | |
|---|---|---|
| ① | GROUP | |
| ② | Select the groups using ◯ or △ INC ▽ DEC, and then press SET. | <br>Only the programs registered as groups can be selected. |
| ③ | Select the groups using ◯ or △ INC ▽ DEC, and then press SET. | **The programs in the group are executed.**<br>When △ INC ▽ DEC are used, the programs are executed in ascending or descending order without pressing SET. |

## 2.5.2 Creating and Saving Groups

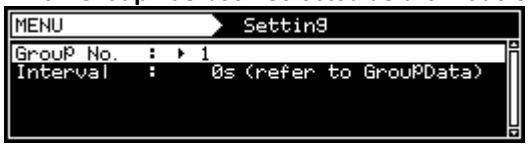
Create frequently used programs and save the desired amount of program data as a group.

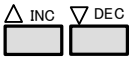
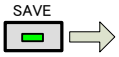
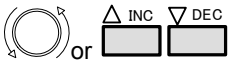
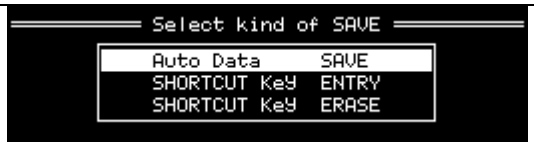
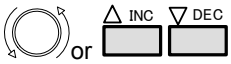
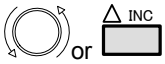
<table>
<tr><td>①</td><td>MENU</td><td colspan="2">
</td></tr>
<tr><td>②</td><td>Select Group Edit using or INC DEC and then press SET.</td><td colspan="2">
</td></tr>
<tr><td rowspan="4">③</td><td rowspan="4">Select the items using or INC DEC and then press SET.</td><td>No.</td><td>The number of the desired group is set here. (01–99)</td></tr>
<tr><td>Name</td><td>Any name (consisting of up to 20 characters) can be allocated as the group name.</td></tr>
<tr><td>Edit Mode</td><td>TIM/PAT:<br>The timing data and pattern data are set separately.<br>Program:<br>The program number is designated here.</td></tr>
<tr><td>Program</td><td>Depending on the Edit Mode setting, the display screen in ④ below will differ.</td></tr>
<tr><td rowspan="5">④</td><td rowspan="5">Select the numbers (01 to 98) of the TIM or PAT programs and AutoInterval using SET or INC DEC, and then press SET.<br><br>The programs set in the group are executed in sequence from 01 up to 98.<br><br>・If 0 is set for both TIM and PAT<br>・If 0 is set for Program<br><br>In both of the above cases, 0 is recognized as the end of the group.</td><td colspan="2">When TIM/PAT is selected as the Edit Mode setting<br>
<br>When Program is selected as the Edit Mode setting<br>
</td></tr>
<tr><td>TIM/PAT</td><td>The program number is set here.</td></tr>
<tr><td>TIM</td><td>The timing data number is set here.</td></tr>
<tr><td>PAT</td><td>The pattern data number is set here.</td></tr>
<tr><td>Auto<br>-Interval</td><td>The execution times during Auto Display are set here (0 to 999 seconds).</td></tr>
<tr><td>⑤</td><td>This completes the setting operations.<br>The group data is now saved.<br>SAVE</td><td colspan="2">
</td></tr>
<tr><td rowspan="2">⑥</td><td rowspan="2">Select the items using or INC DEC and then press SET.</td><td>No.</td><td>The group number is set here (01 to 99).</td></tr>
<tr><td>Media</td><td>Internal: The group data is saved in the internal memory.<br>USB: The group data is saved in the memory connected to the USB1 port.</td></tr>
</table>

| | | | |
|---|---|---|---|
| | | Name | Any name (consisting of up to 20 characters) can be allocated as the name. |
| ⑦ | Select > EXECUTE < using or △ INC ▽ DEC , and then press SET .<br>If previous data exists, the user is prompted to confirm whether to overwrite the existing data. |  <br>This completes the saving of the group data. | |

# 2.6 Automatic program execution

The data in the selected groups and programs can be automatically output in accordance with the set time interval.

| | | |
|---|---|---|
| ① | MENU | |
| ② | Select **Auto Edit** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Selecting the **Mode** setting<br>Select **Program** or **Group** using ◯ or 0/STATUS 1. | |
| ④ | Select **Setting** using ◯ or △ INC ▽ DEC, and then press SET. | **When Program has been selected as the Mode setting**<br> <br>**Interval:**<br>The time during which each pattern is to be displayed is set here (0 to 999 seconds).<br><br>**Program (Start-Stop):**<br>The start and end points of programs to be repeated are set here.<br>The start and end point settings can be designated in three stages.<br>Automatic execution is performed in the following sequence: Start point 1 → end point 1 → start point 2 → end point 2 → start point 3 → end point 3.<br><br>**When Group has been selected as the Mode setting**<br>  <br>**Group No.:**<br>The number of the group to be executed automatically is set here.<br><br>**Interval:**<br>The time during which each pattern is to be displayed is set here (0 to 999 seconds).<br>When 0 is set, the group is executed according to the group data setting. If the interval is not set in the group data, 0 seconds will be set. |

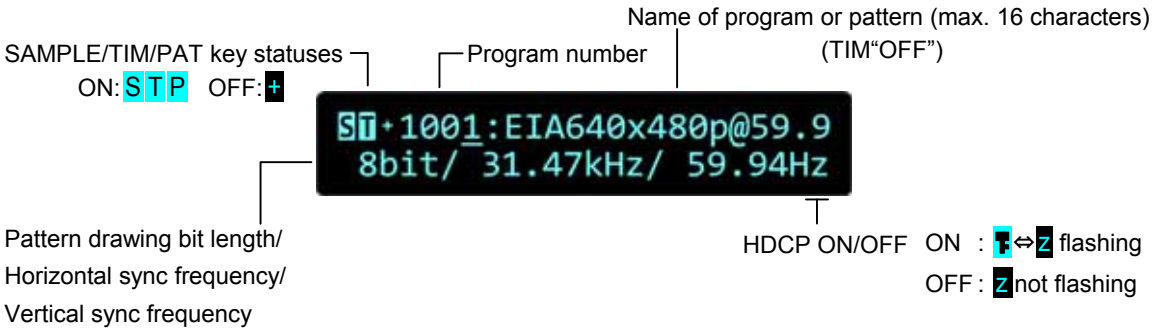
| | | |
|---|---|---|
| ⑤ | For automatic execution, select **EXECUTE** using or  , and then press .<br>To cancel automatic execution at anytime, press . | |
| ⑥ | Select **Auto Data SAVE** using  <br>  |  |
| ⑦ | Select the save destination* at **Media** using  , and then press .<br>Select **EXECUTE** using  , and then press . | <br>*** Internal: The data is saved in the internal memory. USB: The data is saved in the memory connected to the USB1 port.** |

# 2.7 Displays appearing on the front fluorescent display tube

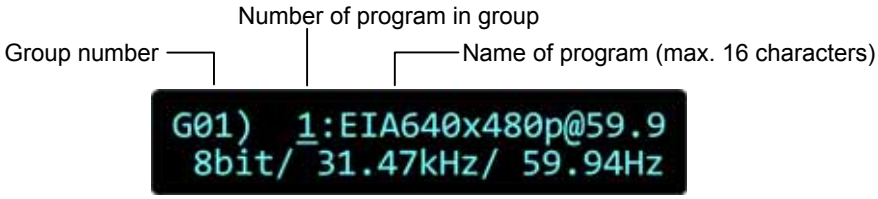
The following describes the information displayed on the fluorescent display tube during operation of the generator.

## Program selection and execution

Standard display

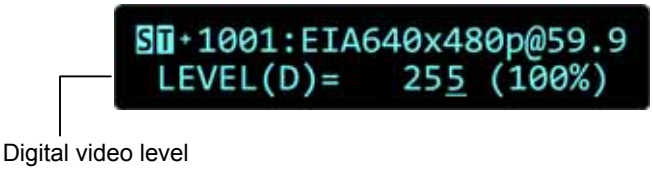



Group execution




## Group selection

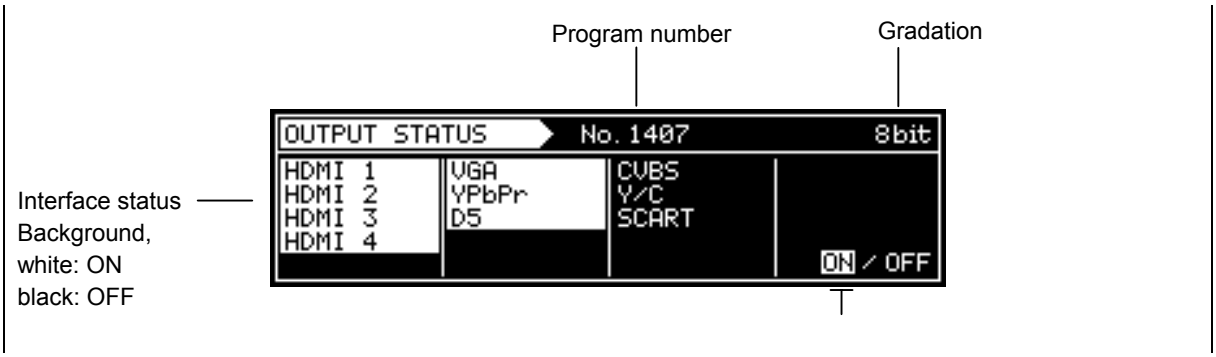
## Digital video level adjustment



## 2.8 Display of interface output status

The output status for each interface is displayed.

Press 0/STATUS and SHIFT at the same time.

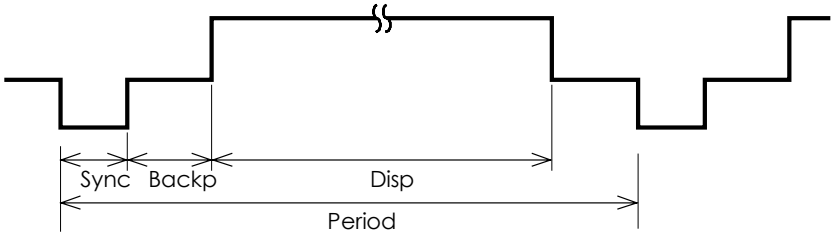


# 3 Selecting and Editing Timing Data

## 3.1 Horizontal timing data editing

### 3.1.1 Horizontal timing data

When making changes with the horizontal timing data, the parameters that can be set and the names of the parameters are indicated below.



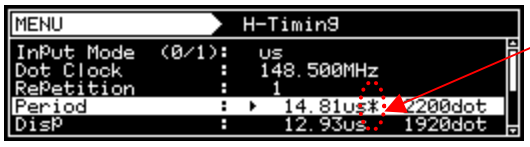

### 3.1.2 Restrictions on the horizontal timing parameters

The table below shows the restrictions on the parameters that can be changed with the horizontal timing data.

| Setting item | Range | Parameter fixing function |
|---|---|---|
| **Dot Clock** | 0.100 to 165.000 MHz<br>* The number of bits that can be output is restricted. | |
| **Period** | Time display: 0.00 to 999.999 µs<br>Dot display: 128 to 8192 dots | µs setting fixed with SHIFT+2<br>dot setting fixed with SHIFT+3 |
| **Disp** | Time display: 0.00 to 999.999 µs<br>Dot display: 48 to 4096 dots | µs setting fixed with SHIFT+0<br>dot setting fixed with SHIFT+1 |
| **Backp , Sync** | Time display: 0.00 to 999.999 µs<br>Dot display: 0 to 4096 dots | |

* When a parameter is fixed, it is accompanied by an asterisk (*). Even when parameters other than ones with fixed items have been changed, the values of the parameters with the asterisks remain fixed.

Example: When a µs setting has been fixed with SHIFT+2 for Period




An asterisk is displayed here when the value is fixed.

CAUTION

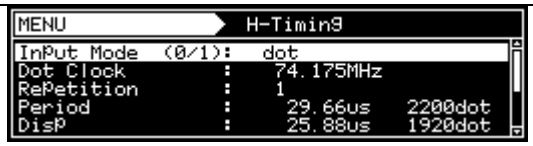
**When items are set in microseconds (µs), restrictions apply to these settings depending on the dot clock frequency and other timing data used for drawing.**

The values for the blanking and frontp items are calculated automatically based on the data above.

| Item | Calculation formula | Range |
|---|---|---|
| **Blanking** | **Blanking = Period – Disp** | Time display: 0.00 to 999.999 µs<br>Dot display: 40 to 4092 dots |
| **Frontp** | **Frontp = Period – Disp – Sync – Backp** | Time display: 0.00 to 999.999 µs<br>Dot display: 0 to 4092 dots |

## 3.1.3 Horizontal timing data setting procedure

The following describes the procedure for setting the parameters that can be changed with the horizontal timing data.

<table>
<tr><td>①</td><td>Select Program Edit using MENU or △ INC ▽ DEC, and then press SET.</td><td>
</td></tr>
<tr><td>②</td><td>Select Timing (TIM) using or △ INC ▽ DEC, and then press SET.</td><td>
</td></tr>
<tr><td>③</td><td>Select H-Timing using or △ INC ▽ DEC and then press SET.</td><td> 
</td></tr>
<tr><td></td><td>Setting the parameters<br>Select the items using or △ INC ▽ DEC and then press SET.<br><br>Alternatively:<br>Select the parameter using 0/STATUS to 9/F and then press SET.<br>(number keys), and then press SET.</td><td>Set the H-Timing parameters.<br><table><tr><td>Input Mode</td><td>Select the input setting for the H-Timing parameters to µs: time [microseconds] or dot: number of dots [dots].</td></tr><tr><td>Dot Clock</td><td>The dot clock frequency [MHz] is set here.</td></tr><tr><td>Repetition</td><td>The number of repetitions is set here.<br>The pixel configuration depends on the number that is set in Repetition.<br>When 2 is set for Repetition and 1440 for Disp, the number of pixels will be 720.</td></tr><tr><td>Period</td><td>The total number of pixels in the horizontal direction is set here.<br>When µs: time [microseconds] has been selected as the Input Mode setting<br>It is possible to establish settings using both µs and dot parameters.</td></tr></table></td></tr>
</table>

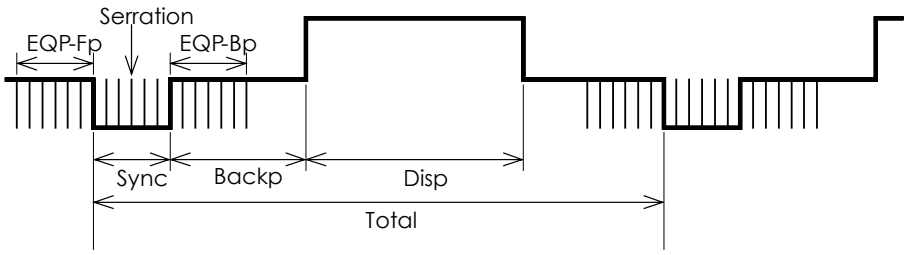
| | | | |
|---|---|---|---|
| | | Disp | The Disp width in the horizontal direction is set here.<br>**When µs: time [microseconds] has been selected as the Input Mode setting**<br>It is possible to establish settings using both µs and dot parameters. |
| | | Sync | The Sync width in the horizontal direction is set here. |
| | | BackP | The BackP width in the horizontal direction is set here. |

# 3.2 Vertical timing data editing

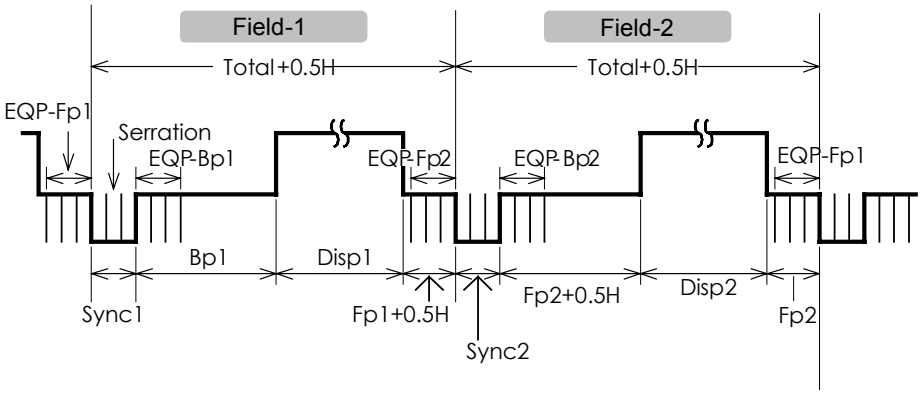
The vertical timing setting locations and names of the settings are indicated below.

## 3.2.1 Vertical timing data

**For progressive scanning**




**For interlaced scanning**




## 3.2.2 Restrictions on the vertical timing parameters

The table below shows the restrictions on the parameters that can be changed with the vertical timing data.

**For progressive scanning**

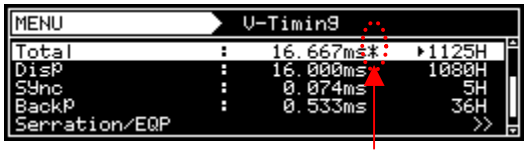
| **Setting item** | Range | Parameter fixing function |
|---|---|---|
| **Total** | Time display: 0.00 to 999.999 ms<br>Dot display: 4 to 4096 H | ms setting fixed with SHIFT+2<br>H setting fixed with SHIFT+3 |
| **Disp** | Time display: 0.00 to 999.999 ms<br>Dot display: 1 to 2560 H | ms setting fixed with SHIFT+0<br>H setting fixed with SHIFT+1 |
| **Sync** | Time display: 0.00 to 999.999 ms<br>Dot display: 1 to 99 H | |
| **Backp** | Time display: 0.00 to 999.999 ms<br>Dot display: 0 to 4096 H | |

**For interlaced scanning**

| Setting item | Range | Parameter fixing function |
|---|---|---|
| **Field-1 Total1** | Time display: 0.00 to 999.999 ms<br>Dot display: 2.0 to 2048.0 H<br>(in 0.5 H increments) | ms setting fixed with SHIFT+2<br>H setting fixed with SHIFT+3 |
| **Disp1** | Time display: 0.00 to 999.999 ms<br>Dot display: 0 to 1280 H | ms setting fixed with SHIFT+0<br>H setting fixed with SHIFT+1 |
| **Sync1** | Time display: 0.00 to 999.999 ms<br>Dot display: 1.0 to 99.0 H<br>(in 0.5 H increments) | |
| **Backp1** | Time display: 0.00 to 999.999 ms<br>Dot display: 0.0 to 2048.0 H<br>(in 0.5 H increments) | |
| **Field-2 Total2** | Same as **Field-1** | Same as **Field-1** |
| **Disp2** | | |
| **Sync2** | | |
| **Backp2** | | |

* When a parameter is fixed, it is accompanied by an asterisk (*). Even when values other than ones for parameters with an asterisk have been changed, the values of the parameters with the asterisks remain fixed.

Example: When a ms setting has been fixed with SHIFT+2 for Total




An asterisk is displayed here when the value is fixed.

CAUTION

**When the time display (ms) is set for the items, restrictions apply to these settings depending on the H-period and other timing data used for drawing.**

The values for the blanking and frontp items are calculated automatically based on the data above.

**For progressive scanning**

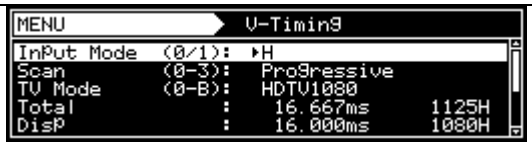
| Item | Calculation formula | Range |
|---|---|---|
| **Blanking** | Blanking = Total – Disp | Time display: 0.00 to 999.999 ms<br>Dot display: 1 to 4096 H |
| **Frontp** | Frontp = Total – Disp – Sync – Backp | Time display: 0.00 to 999.999 ms<br>Dot display: 0 to 4096 H |

**For interlaced scanning**

| Item | Calculation formula | Range |
|---|---|---|
| **Frontp1**<br>**(Frontp2)** | Frontp1 = Total2 – Disp2 – Sync2 – Backp2<br>(Frontp2 = Total1 – Disp1 – Sync1 – Backp1) | Time display: 0.00 to 999.999 ms<br>Dot display: 0.0 to 2048.0 H |
| **Blanking1**<br>**(Blanking2)** | Blanking1 = Frontp1 + Sync1 + Backp1<br>(Blanking2 = Frontp2 + Sync2 + Backp2) | Time display: 0.00 to 999.999 ms<br>Dot display: 1.0 to 2048.0 H |

## 3.2.3 Vertical timing data setting procedure

The following describes the procedure for setting the parameters that can be changed with the vertical timing data.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → ◯ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Timing (TIM)** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **V-Timing** using ◯ or △ INC ▽ DEC and then press SET. |  |

Select the **items** using ◯ or △ INC ▽ DEC and then press SET.

Alternatively:

Select the parameter using 0/STATUS to 9/F and then press SET.

(number keys), and then press SET.

* In the case of interlaced scanning outputs, Total, Disp, Sync and BackP are set for both Field1 and Field2.

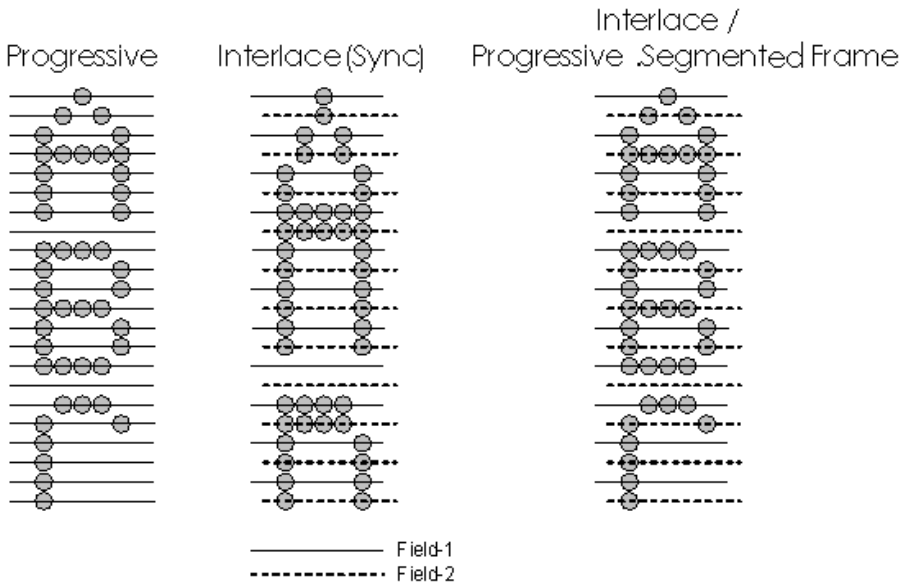
Set the V-Timing parameters.

| | |
|---|---|
| Input Mode | Select the input setting for the V-Timing parameters to ms: time [milliseconds] or H: number of lines [H]. |
| Scan | For further details, refer to "**3.2.4 Scanning modes**". |
| TV Mode | As a general rule, do not change this setting.<br>For further details, refer to "**3.2.5 TV modes**". |
| Total | The Total number in the vertical direction is set here. |
| Disp | The Disp width in the vertical direction is set here. |
| Sync | The Sync width in the vertical direction is set here. |
| BackP | The BackP width in the vertical direction is set here. |
| Serration /EQP | For further details, refer to "**3.2.6 Serration and EQP**". |

## 3.2.4 Scanning modes

The table below lists the V-Timing scan settings, the operations for the scanning methods supported by the settings, the imaging methods, and the action settings.

| Scan mode | System | Pixel imaging | Scroll and other actions |
|---|---|---|---|
| **Progressive** | Progressive scanning | Different pixels are drawn on each line. | Operation is performed for each frame. |
| **Interlace** | Interlaced scanning | Different pixels are drawn in the first and second fields. | Operation is performed for each field. |
| **Prog.Segmented Frame** | Interlaced scanning | Different pixels are drawn in the first and second fields. | Operation is performed for each frame (2 fields). |
| **Interlace (Sync)** | Interlaced scanning | The same image is **repeatedly drawn** in the first and second fields. | Operation is performed for each field. |



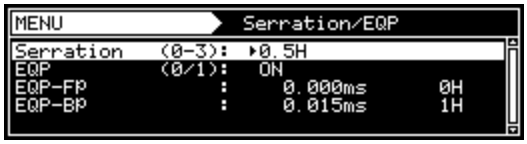

## 3.2.5 TV modes

This parameter indicates the output of the standard TV signals (NTSC, NTSC-M, NTSC-443, PAL, PAL-M, PAL-Nc, HDTV1080 or HDTV 720).
Even when this parameter is changed, the timing data and other data will not be edited. Therefore, when changed, it is not possible for images to be drawn correctly on the monitor.

* When editing the sample timing data using a TV Mode setting other than “Other”, select “Other” as the TV mode setting. In this case, however, the tri-level sync signal will not be output.

## 3.2.6 Serration and EQP

Serration and EQP can be selected on the V-Timing [MENU] screen, and the various parameters can be set. The relationship between the settings and operations are described in the table below.

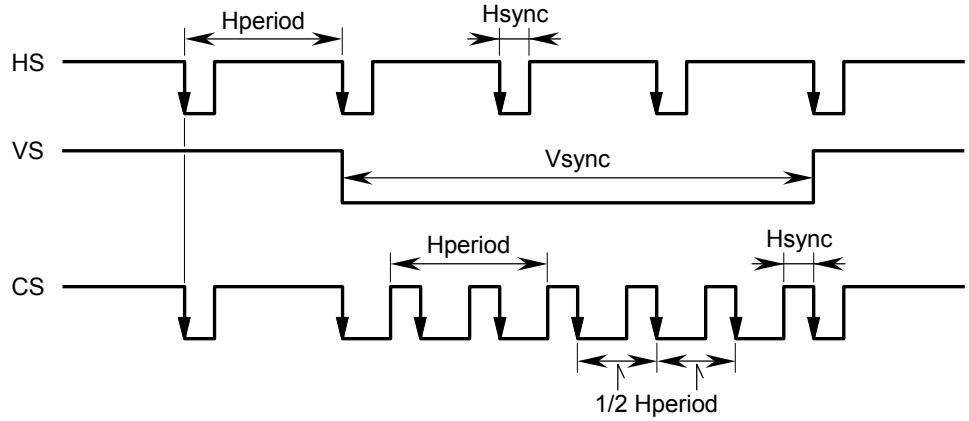



**Serration and EQP setting procedure**

| Setting item | Key | LCD display | Description |
|---|---|---|---|
| Serration | 0 | OFF | Serrated pulses are not inserted. |
| | 1 | 0.5H | Serrated pulses are inserted in increments of 0.5 H. |
| | 2 | 1H | Serrated pulses are inserted in increments of 1 H. |
| | 3 | EXOR | HS and VS EXORs are inserted as serrated pulses. |
| EQP | 0 | OFF | Equalizing pulses are not inserted into the EQPfp and EQPbp periods. |
| | 1 | ON | Equalizing pulses are inserted into the EQPfp and EQPbp periods. |

The following shows an example of the phase relationship when a setting of 0.5 H has been selected for Serration.

● **When a setting of 0.5H has been selected for Serration**



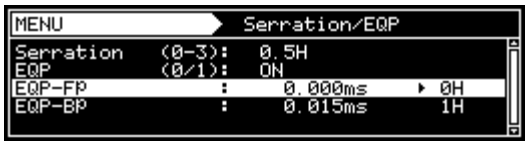

CAUTION

- The serration and EQP item settings are not reflected in the composite, Y/C and SCART signals.
- In the case of HDTV timing data, they are set to OFF when EXOR is selected as the serration setting item.

## 3.2.7 EQP-Fp and EQP-Bp

Equalizing pulses (EQP-Fp and EQP-Bp) can be selected on the V-Timing [MENU] screen, and the various parameters can be set.

The relationship between the settings and operations are described in the table below.




**EQP-Fp/EQP-Bp setting procedure**

**For progressive scanning**

| Setting item | Details of setting |
|---|---|
| EQP-Fp | This sets the equalizing pulse inside the front porch.<br>Range: 0.000 to 999.999 [ms], 0 to 99 [H] |
| EQP-Bp | This sets the equalizing pulse inside the back porch.<br>Range: 0.000 to 999.999 [ms], 0 to 99 [H] |

**For interlaced scanning**

| Setting item | Details of setting |
|---|---|
| EQP-Fp1<br>(EQP-Fp2) | This sets the equalizing pulse inside the front porch.<br>Range: 0.000 to 999.999 [ms], 0.0 to 99.0 [H] (in 0.5 H increments) |
| EQP-Bp1<br>(EQP-Bp2) | This sets the equalizing pulse inside the back porch.<br>Range: 0.000 to 999.999 [ms], 0.0 to 99.0 [H] (in 0.5 H increments) |

CAUTION

- Set EQP-Fp within the range of [(EQP-Fp +1H) ≦ Hfrontp] for tri-level sync signal outputs in the interlaced scanning mode

The figure below shows the EQP phase relationship and approach taken.

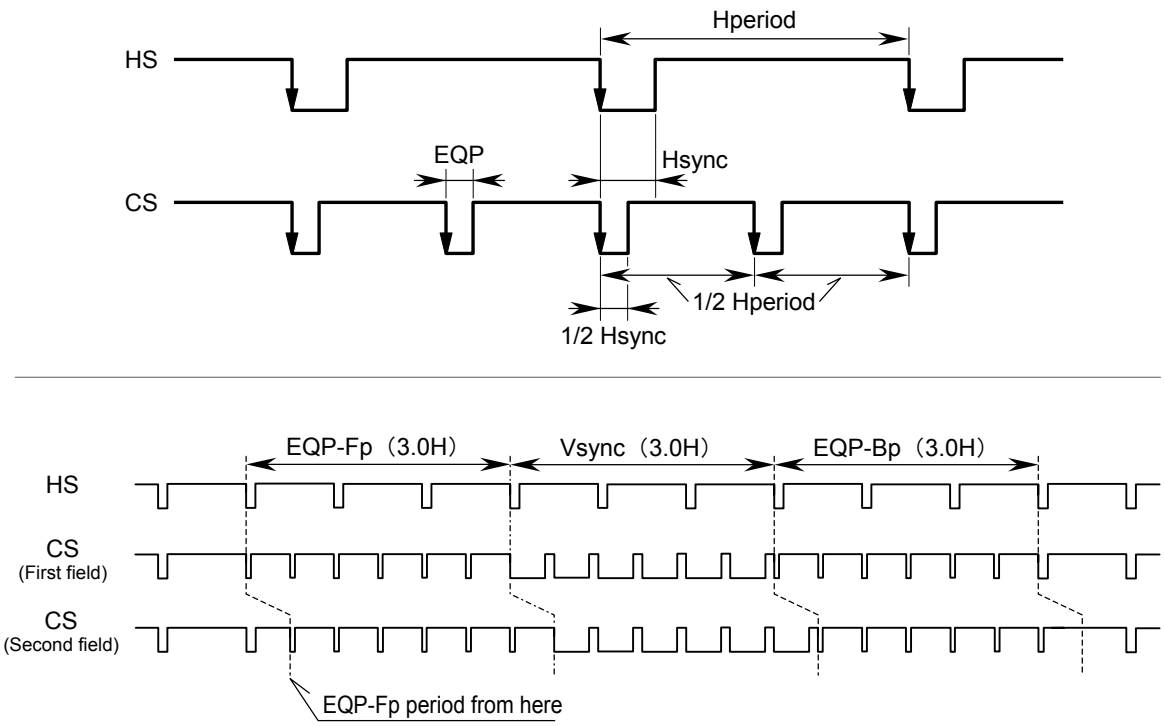
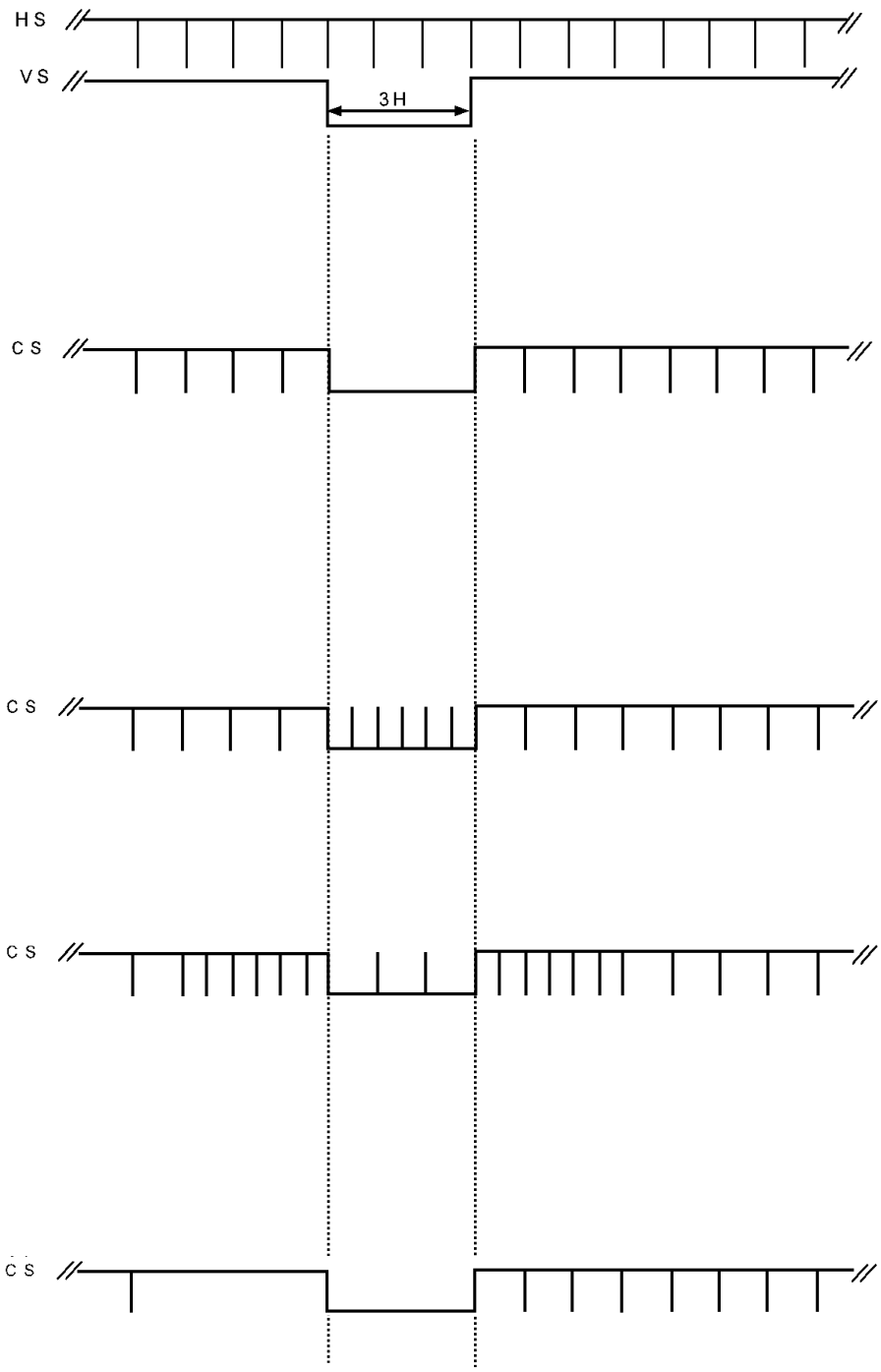



**Fig. 5-3-9 EQP phase relationship and approach taken**

Example: Four examples of the EQP-Fp, EQP-Bp, EQP and Serration settings are shown below.




**Setting example 1**

| Setting item | Setting |
|---|---|
| EQP-Fp | 0H |
| EQP-Bp | 0H |
| EQP | OFF |
| Serration | OFF |

**Setting example 2**

| Setting item | Setting |
|---|---|
| EQP-Fp | 0H |
| EQP-Bp | 0H |
| EQP | OFF |
| Serration | 0.5H |

**Setting example 3**

| Setting item | Setting |
|---|---|
| EQP-Fp | 3H |
| EQP-Bp | 3H |
| EQP | ON |
| Serration | 1H |

**Setting example 4**

| Setting item | Setting |
|---|---|
| EQP-Fp | 3H |
| EQP-Bp | 0H |
| EQP | OFF |
| Serration | OFF |

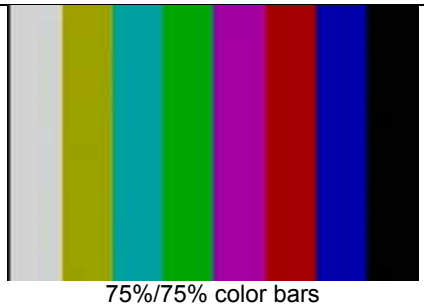
# 4 Selecting and Editing Pattern Data

## 4.1 Color bar patterns

### 4.1.1 Types of color bar patterns

When color bars have been selected using the pattern key, for instance, color bar patterns can be selected from among the types listed below.
For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | | |
|---|---|---|
| 0 | **CUSTOM** | Customized pattern |
| 1 | **100/100-H** | 100%/100% color bars |
| 2 | **100/75-H** | 100%/75% color bars |
| 3 | **75/75-H** | 75%/75% color bars |
| 4 | **SMPTE** | SMPTE color bars |
| 5 | **RGBW-V** | Horizontal color bars |
| 6 | **xvYCC 4%** | xvYCC 4% color bars |
| 7 | **xvYCC 8%** | xvYCC 8% color bars |
| 8 | **xvYCC 12%** | xvYCC 12% color bars |


75%/75% color bars

SMPTE color bars

CAUTION

**・xvYCC color bars are not displayed correctly for output other than HDMI output.**

## 4.1.2 Customizing color bar patterns

Described below is the procedure for selecting the color bar pattern type and for performing the settings when **CUSTOM** has been selected as the color bar pattern type.
(If **CUSTOM** is selected, the color bar patterns can be displayed with any width and color.)

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU, or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using, or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using, or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Color Bar** using, or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select **Color Bar** using, or △ INC ▽ DEC, and then press SET. | |
| ⑦ | **Selecting the pattern type**<br>Select **Type** using, or △ INC ▽ DEC, and then press SET. | For details of the pattern types, refer to "**4.1.1 Types of color bar patterns**".<br><br>If CUSTOM has been selected for Type, set **item ⑧ below**. |

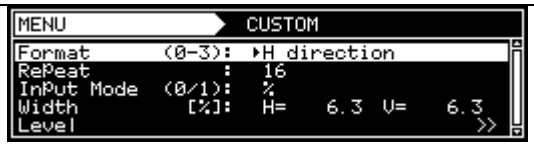
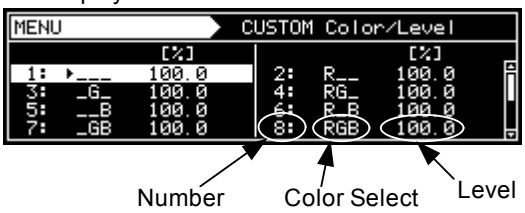
| | | |
|---|---|---|
| ⑧ | When **Type** is set to **CUSTOM** |  |
| | **Advanced settings of customized patterns**<br><br>Select **CUSTOM** on the screen in step ⑥ above, and then press SET. | |
| | **Selecting the items and inputting the parameters**<br><br>Select the items, set the parameters, and create a customized pattern. | For details on the settings, refer to "**Table of customized color bar pattern setting items**" below. |

**Table of customized color bar pattern setting items**

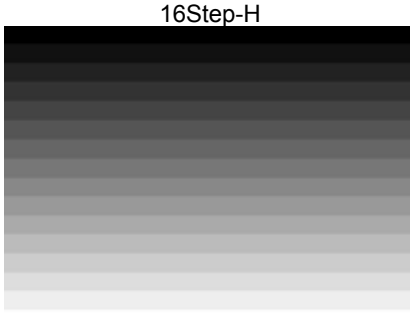
| | | | | |
|---|---|---|---|---|
| (1) | **Format(0-3)** | The drawing direction of the color bars is set here. | | |
| | | 0 | **H Direction** | Horizontal direction |
| | | 1 | **V Direction** | Vertical direction |
| | | 2 | **H Direction&div.V** | Horizontal direction (loopback by Repeat) |
| | | 3 | **V Direction&div.H** | Vertical direction (loopback by Repeat) |
| (2) | **Repeat** | One or more of the 1 to 16 data set by **Color/Level** are set here. The value set here becomes the number of colors that are displayed. **Range: 1 to 16** | | |
| (3) | **Input Mode(0/1)** | The method of specifying the display size per color is set here. | | |
| | | 0 | **%** | The size is set as a percentage of the entire screen. |
| | | 1 | **dot** | The size is set in 1-dot increments. |
| (4) | **Width[%]**<br>**Width[dot]** | The display size per color is set here. | | |
| | | **When a percentage is used for Input Mode** | | Set any width from 0.1% to 100.0%. |
| | | **When dots are used for Input Mode** | | Set the width in 1-dot increments. |
| (5) | **Color/ Level>>** | The display color and level are set here.<br>  | | |
| | | **Number** | | The colors from 1 to the Repeat setting are used for the display. |
| | | **Color** | | The display colors are selected here. |
| | | | 0 | **_ _ _** Black |
| | | | 1 | **R _ _** Red |
| | | | 2 | **_ G _** Green |
| | | | 3 | **R G _** Yellow |
| | | | 4 | **_ _ B** Blue |
| | | | 5 | **R _ B** Magenta |
| | | | 6 | **_ G B** Cyan |
| | | | 7 | **R G B** White |
| | | **Level** | | The level as a percentage of the peak brightness is set here. **Setting range: 0.0 to 100.0%** |

# 4.2 Gray scale patterns

## 4.2.1 Types of gray scale patterns

When gray scale has been selected using the pattern key, for instance, gray scale patterns can be selected from among the types listed below.

For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | | | |
|---|---|---|---|
| 0 | **CUSTOM** | Customized pattern | 16Step-H  16Step-V |
| 1 | **8Step-H** | 8 steps (horizontal) | |
| 2 | **16Step-H** | 16 steps (horizontal) | |
| 3 | **32Step-H** | 32 steps (horizontal) | |
| 4 | **8Step-V** | 8 steps (vertical) | |
| 5 | **16Step-V** | 16 steps (vertical) | |
| 6 | **32Step-V** | 32 steps (vertical) | |

## 4.2.2 Customizing gray scale patterns

Described below is the procedure for selecting the gray scale pattern type and for performing the settings when **CUSTOM** has been selected as the gray scale pattern type.
(If **CUSTOM** is selected, the gray scale patterns can be displayed with any width and level.)

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Gray Scale** using or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select **Gray Scale** using or △ INC ▽ DEC, and then press SET. | |
| ⑦ | **Selecting the pattern type**<br>Select **Type** using or △ INC ▽ DEC, and then press SET. | For details of the pattern types, refer to "**4.2.1 Types of gray scale patterns**".<br><br>If CUSTOM has been selected for Type, set **item ⑧ below**. |

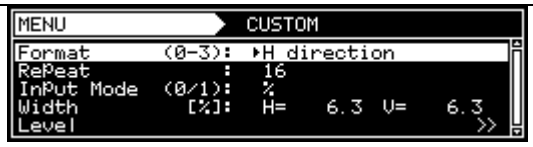
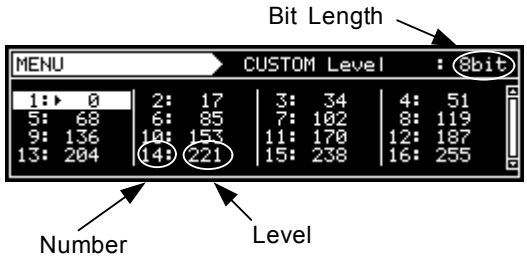
| | | |
|---|---|---|
| ⑧ | When **Type** is set to **CUSTOM** |  |
| | **Advanced settings of customized patterns**<br><br>Select **CUSTOM** on the screen in step ⑥ above, and then press SET. | |
| | **Selecting the items and inputting the parameters**<br><br>Select the items, set the parameters, and create a customized pattern. | For details on the settings, refer to "**Table of customized gray scale pattern setting items**" below. |

**Table of customized gray scale pattern setting items**

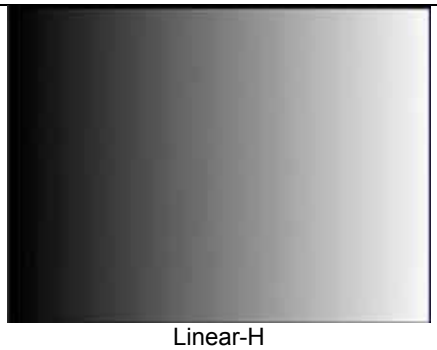
| | | | | |
|---|---|---|---|---|
| (1) | **Format(0-3)** | The drawing direction of the gray scale is set here. | | |
| | | 0 | **H Direction** | Horizontal direction |
| | | 1 | **V Direction** | Vertical direction |
| | | 2 | **H Direction&div.V** | Horizontal direction (loopback by Repeat) |
| | | 3 | **V Direction&div.H** | Vertical direction (loopback by Repeat) |
| (2) | **Repeat** | One or more of the 1 to 16 data set by **Level** are set here. The value set here becomes the number of steps that are displayed. **Range: 1 to 16** | | |
| (3) | **Input Mode(0/1)** | The method of specifying the display size per step is set here. | | |
| | | 0 | **%** | The size is set as a percentage of the entire screen. |
| | | 1 | **dot** | The size is set in 1-dot increments. |
| (4) | **Width[%]**<br>**Width[dot]** | The display size per step is set here. | | |
| | | **When a percentage is used for Input Mode** | | Set any width from 0.1% to 100.0%. |
| | | **When dots are used for Input Mode** | | Set the width in 1-dot increments. |
| (5) | **Level>>** | The display level is set here.<br>  | | |
| | | **Number** | | The steps from 1 to the Repeat setting are used for the display. |
| | | **Level** | | The level is set here.<br>The setting range differs depending on the **color depth**. |
| | | | 8BIT | **0 - 255** |
| | | | 9BIT | **0 - 511** |
| | | | 10BIT | **0 - 1023** |
| | | | 11BIT | **0 - 2047** |
| | | | 12BIT | **0 - 4095** |

# 4.3 Ramp patterns

## 4.3.1 Types of ramp patterns

When ramp has been selected using the pattern key, for instance, ramp patterns can be selected from among the types listed below.
For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | |
|---|---|
| **0** | **CUSTOM** |
| **1** | **Linear-H** |
| **2** | **Linear-V** |
| **3** | **Linear-256** |
| **4** | **Turn-H** |
| **5** | **Linear-HV** |



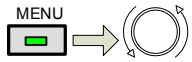
Linear-H

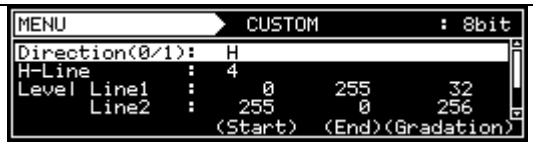
*1 Limited-V is selectable only by or

.
*2 The luminance level of Limited-H/V is 16-232 and color-difference level is 16-240.

## 4.3.2 Ramp pattern type settings and customizing

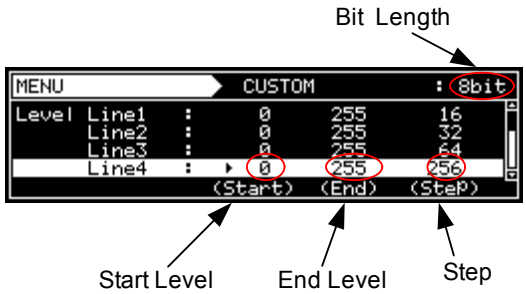
Described below is the procedure for selecting the ramp pattern type and for performing the settings when **CUSTOM** has been selected as the ramp pattern type.
(If **CUSTOM** is selected, the ramp patterns can be displayed with any level and steps.)

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Ramp** using or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select **Ramp** using or △ INC ▽ DEC, and then press SET. | |
| ⑦ | **Selecting the pattern type**<br>Select **Type** using or △ INC ▽ DEC, and then press SET. | For details of the pattern types, refer to "**4.3.1 Types of ramp patterns**".<br><br>If CUSTOM has been selected for Type, set **item ⑧ below**. |

| | | |
|---|---|---|
| ⑧ | When **Type** is set to **CUSTOM**<br>**Advanced settings of customized patterns**<br>Select **CUSTOM** on the screen in step ⑥ above, and then press SET. |  |

| | | |
|---|---|---|
| | **Selecting the items and inputting the parameters**<br><br>Select the items, set the parameters, and create a customized pattern. | For details on the settings, refer to "**Table of customized ramp pattern setting items**" below. |

**Table of customized ramp pattern setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Direction(0/1)** | The resolution is set here. | | |
| | | 0 | **H** | Horizontal ramp |
| | | 1 | **V** | Vertical ramp |
| (2) | **H-Line** | Up to four ramp patterns with different levels and steps can be displayed on one screen.<br>**Range: 1 to 4 types. These types are used in sequence from line 1.** | | |
| (3) | **Line1 to Line4** | The start level, end level, and step are set here.<br>  <br> | | |
| | | **(Start)** | | The start level is set here. |
| | | **(End)** | | The end level is set here. |
| | | **(Step)** | | The number of display steps from the start level to end level is set here.<br>**Setting range: 1 ≦ setting ≦ (End) - (Start) + 1** |
| | | | | The setting range for the above levels differs depending on the **color depth**. |
| | | | 8BIT | **0 - 255** |
| | | | 9BIT | **0 - 511** |
| | | | 10BIT | **0 - 1023** |
| | | | 11BIT | **0 - 2047** |
| | | | 12BIT | **0 - 4095** |

* Concerning H-Line

This item takes effect only when "0" has been selected as the Direction setting.

* Concerning Direction

When "1" has been selected as the Direction setting, only "1" takes effect as the H-Line setting. (Splitting in the vertical direction is not possible.)

# 4.4 Sweep patterns

## 4.4.1 Types of sweep patterns

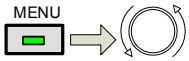
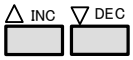
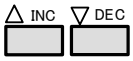
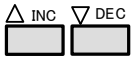
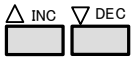
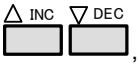
When sweep has been selected using the pattern key, for instance, sweep patterns can be selected from among the types listed below.

For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | | | |
|---|---|---|---|
| **0** | **Multi-Burst 100** | Multi-burst | Multi-burst |
| **1** | **Multi-Burst 50** | Multi-burst | |
| **2** | **Sweep** | Sweep | |

## 4.4.2 Sweep pattern selection

The types of sweep patterns can be set using the procedure below.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC  , and then press SET . | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC , and then press SET . | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC  , and then press SET . | |
| ④ | Select **Sweep** using or △ INC ▽ DEC  , and then press SET . | |
| ⑤ | Press ESC . | |
| ⑥ | Select **Sweep** using or △ INC ▽ DEC  , and then press SET . | |
| ⑦ | **Selecting the pattern type**<br>Select **Type** using or △ INC ▽ DEC  , and then press SET . | For details of the pattern types, refer to "**4.4.1 Types of sweep patterns**". |

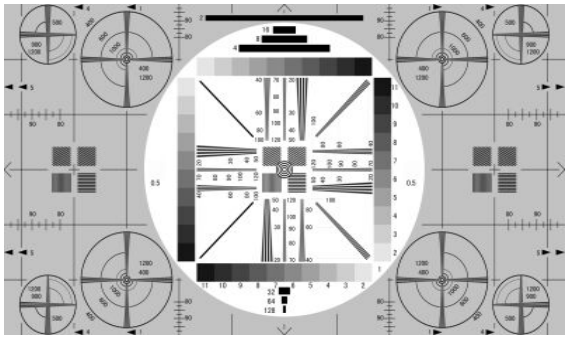
# 4.5 Monoscope patterns

## 4.5.1 Types of monoscope patterns

When monoscope has been selected using the pattern key, for instance, monoscope patterns can be selected from among the types listed below.

For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | |
|---|---|
| **0** | **SMPTE RP-133** |
| **1** | **SMPTE PR-133 Color** |
| **2** | **MONOSCOPE** |
| **3** | **PHILIPS** |
| **4** | **CHINA** |



MONOSCOPE

## 4.5.2 Selecting the monoscope pattern

The types of monoscope patterns can be selected using the procedure below.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU<br>or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC<br>▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using<br>or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Monoscope** using or △ INC<br>▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |

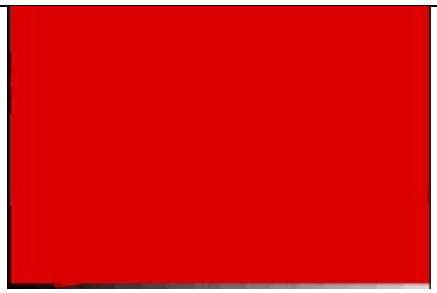
| | | |
|---|---|---|
| ⑥ | Select **Monoscope** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑦ | **Selecting the pattern type**<br>Select **Type** using ◯ or △ INC ▽ DEC, and then press SET. | For details of the pattern types, refer to "**4.5.1 Types of monoscope patterns**". |

# 4.6 Raster patterns

## 4.6.1 Types of raster patterns

When raster patterns have been selected using the pattern key, for instance, raster patterns can be selected from among the types listed below.
For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | |
|---|---|
| **0** | **CUSTOM** |
| **1** | **White** |
| **2** | **Red** |
| **3** | **Green** |
| **4** | **Blue** |
| **5** | **Black** |
| **6** | **50%-Gray** |

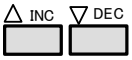


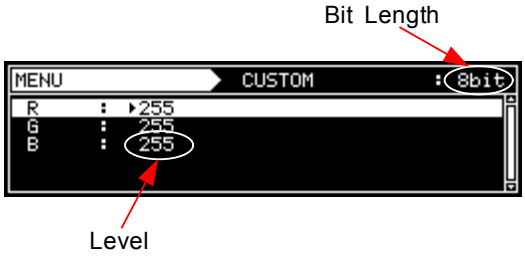
Raster pattern

## 4.6.2 Raster pattern type settings and customizing

Described below is the procedure for selecting the raster pattern type and for performing the settings when **CUSTOM** has been selected as the raster pattern type. (The rasters can be displayed with any level.)

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU, or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Raster** using or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select **Raster** using or △ INC ▽ DEC, and then press SET. | |

| | | |
|---|---|---|
| ⑦ | **Selecting the pattern type**<br><br>Select **Type** using or  , and then press . | For details of the pattern types, refer to "**4.6.1 Types of raster patterns**".<br><br>If CUSTOM has been selected for Type, set **item ⑧ below**. |

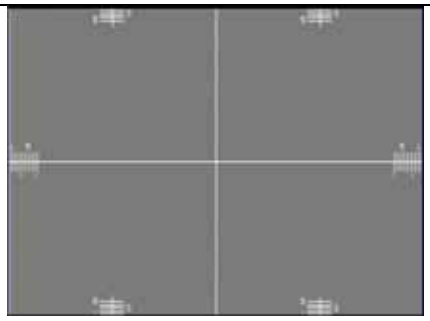
| | | | | |
|---|---|---|---|---|
| ⑧ | When **Type** is set to **CUSTOM**<br>**Advanced settings of customized patterns**<br><br>Select **CUSTOM** on the screen in step ⑥ above, and then press . |  | | |
| | **Selecting the items and inputting the parameters**<br><br>Select the items, set the parameters, and create a customized pattern. | **R,G,B** | The setting range for the above levels differs depending on the **color depth**. | |
| | | | 8BIT | **0 - 255** |
| | | | 9BIT | **0 - 511** |
| | | | 10BIT | **0 - 1023** |
| | | | 11BIT | **0 - 2047** |
| | | | 12BIT | **0 - 4095** |

# 4.7 Aspect ratio patterns

## 4.7.1 Types of aspect ratio patterns

When aspect ratio has been selected using the pattern key, for instance, aspect ratio patterns can be selected from among the types listed below.

For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | | | |
|---|---|---|---|
| 0 | **Over Scan** | |  Over Scan |
| 1 | **AFD** | | AFD pattern |
| | 0 | **As the coded frame** | |
| | 1 | **4:3 (center)** | |
| | 2 | **16:9 (center)** | |
| | 3 | **14:9 (center)** | |
| | 4 | **box 16:9 (top)** | |
| | 5 | **box 14:9 (top)** | |
| | 6 | **box 13:7 (center)** | |
| | 7 | **box 2:1 (center)** | |
| | 8 | **box 11:5 (center)** | |
| | 9 | **box 12:5 (center)** | |
| | A | **4:3 (14:9 center)** | |
| | B | **16:9 (14:9 center)** | |
| | C | **16:9 (4:3 center)** | |

## 4.7.2 Aspect ratio pattern type settings and customizing

Described below is the procedure for selecting the aspect ratio pattern type and for performing the settings when **CUSTOM** has been selected as the aspect ratio pattern type.
(If **CUSTOM** is selected, the aspect ratio patterns can be displayed with any level.)

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Aspect** using or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select **Aspect** using or △ INC ▽ DEC, and then press SET. | |
| ⑦ | **Selecting the pattern type**<br>Select **Type** using or △ INC ▽ DEC, and then press SET. | For details of the pattern types, refer to "**4.7.1 Types of aspect ratio patterns**".<br>If AFD has been selected for Type, set **item ⑧ below**. |

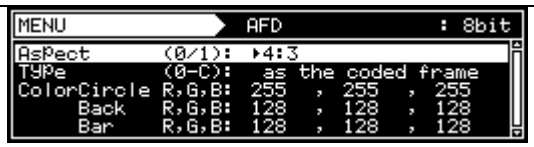
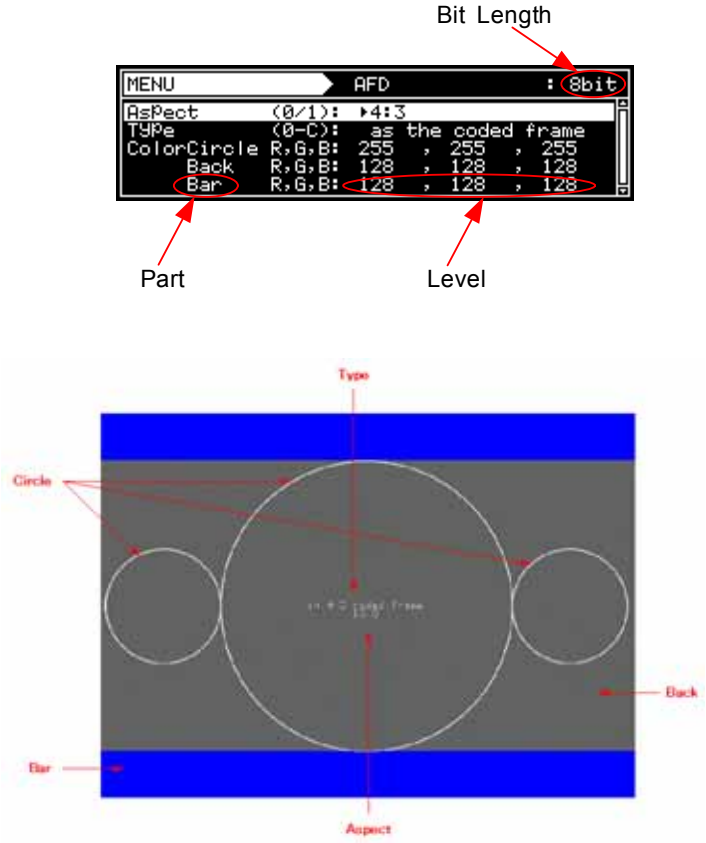
| | | |
|---|---|---|
| ⑧ | When **Type** is set to **AFD**<br>**Advanced settings of AFD patterns**<br>Select **AFD** on the screen in step ⑥ above, and then press SET.<br>**Selecting the items and inputting the parameters**<br>Select the items, set the parameters, and create a customized pattern. |  <br>For details on the settings, refer to "**Table of AFD pattern setting items**" below. |

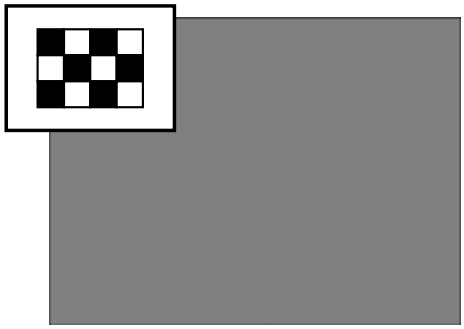
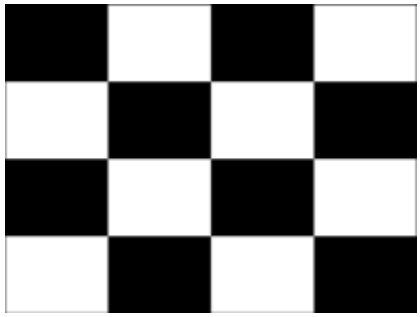
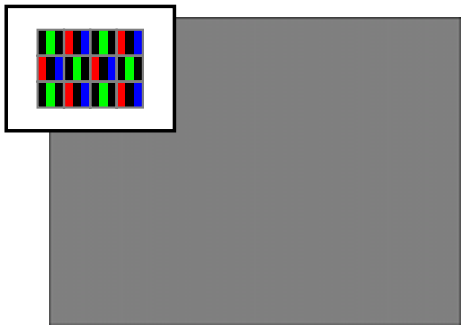
**Table of AFD pattern setting items**

<table>
<tr><td>(1)</td><td>Aspect(0/1)</td><td colspan="3">The aspect ratio of the screen is set here.</td></tr>
<tr><td></td><td></td><td>0</td><td>4:3</td><td>The images are displayed on the screen with a 4:3 aspect ratio.</td></tr>
<tr><td></td><td></td><td>1</td><td>16:9</td><td>The images are displayed on the screen with a 16:9 aspect ratio.</td></tr>
<tr><td>(2)</td><td>Type</td><td colspan="3">For details of the pattern types, refer to “4.7.1 Types of aspect ratio patterns”.</td></tr>
<tr><td>(3)</td><td>Color</td><td colspan="3"> 
</td></tr>
<tr><td></td><td></td><td>Circle</td><td colspan="2">Displays the circle level.<br>The R, G and B levels are displayed in sequence from the left.<br>The setting range for the above levels differs depending on the color depth.</td></tr>
<tr><td></td><td></td><td></td><td>8BIT</td><td>0 - 255</td></tr>
<tr><td></td><td></td><td></td><td>9BIT</td><td>0 - 511</td></tr>
<tr><td></td><td></td><td></td><td>10BIT</td><td>0 - 1023</td></tr>
<tr><td></td><td></td><td></td><td>11BIT</td><td>0 - 2047</td></tr>
<tr><td></td><td></td><td></td><td>12BIT</td><td>0 - 4095</td></tr>
<tr><td></td><td></td><td>Back</td><td colspan="2">The background level is set here.<br>(Details are the same as for Color Circle.)</td></tr>
<tr><td></td><td></td><td>Bar</td><td colspan="2">The bar level is set here.<br>(Details are the same as for Color Circle.)</td></tr>
</table>

# 4.8 Checkerboard patterns

## 4.8.1 Types of checkerboard patterns

When checkerboard has been selected using the pattern key, for instance, checkerboard patterns can be selected from among the types listed below.
For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | | | |
|---|---|---|---|
| 0 | **DOTxDOT** | Dot |  |
| 1 | **BLOCKxBLOCK** | Block |  |
| 2 | **SubPixel** | Sub-pixel |  |

## 4.8.2 Checkerboard pattern customizing

Described below is the procedure for selecting the checkerboard pattern type and setting the spacing.

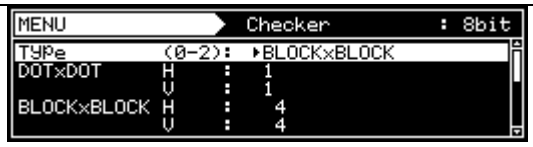
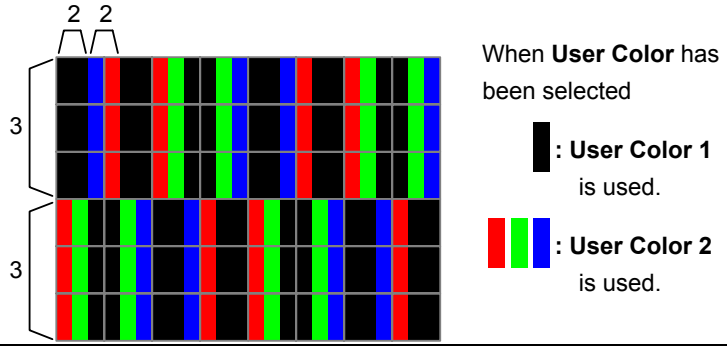
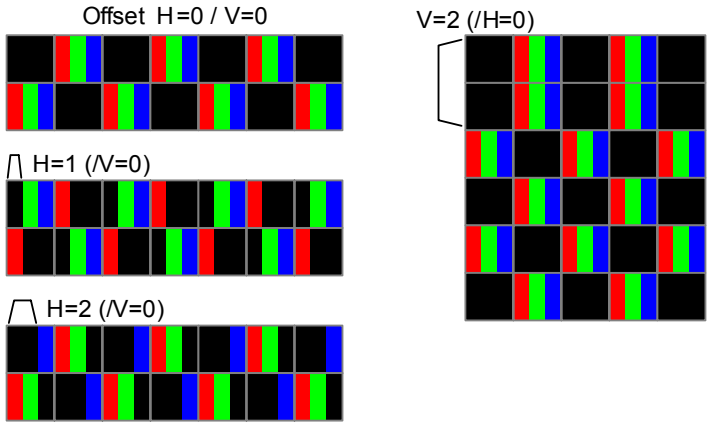
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Checker** using or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select **Checker** using or △ INC ▽ DEC, and then press SET. |  |
| ⑦ | **Selecting the pattern type**<br>Select **Type** using or △ INC ▽ DEC, and then press SET.<br><br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F, (number keys), and then press SET. | For details of the pattern types, refer to "**4.8.1 Types of checkerboard patterns**".<br><br>Depending on the Type setting, the setting items differ. Refer to "**Table of checkerboard setting items**" below. |

**Table of checkerboard setting items**

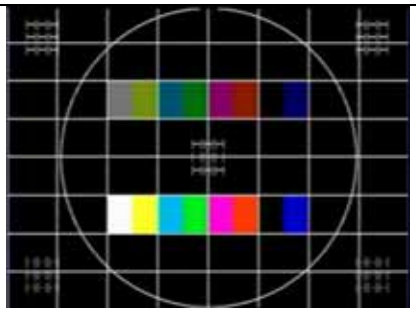
<table>
<tr><td>(1)</td><td>DOTxDOT H/V</td><td>(Valid only when DOT×DOT has been selected as the Type setting)<br>Set the number of horizontal (H) and vertical (V) pixels for one color.<br>Setting range: 1 to 8</td></tr>
<tr><td>(2)</td><td>BLOCKxBLOCK H/V</td><td>(Valid only when BLOCKxBLOCK has been selected as the Type setting)<br>Set the number of horizontal (H) and vertical (V) blocks.<br>Setting range: 2 to 32</td></tr>
<tr><td rowspan="2">(3)</td><td rowspan="2">Sub Pixel H/V</td><td>(Valid only when Sub Pixel has been selected as the Type setting)<br>Set the number of horizontal (H) sub pixels and vertical (V) pixels.<br>Setting range: 0 to 3<br>* When RGB 0% / 100% has been selected for Color Select, H=1 and V=1 will be set regardless of the settings.</td></tr>
<tr><td>Setting example: H=2, V=3<br> 
</td></tr>
<tr><td rowspan="2">(4)</td><td rowspan="2">SubPixel Offset H/V</td><td>(Valid only when Sub Pixel has been selected as the Type setting)<br>Set the number of sub pixels at the top left in the horizontal (H) direction and the number of pixels at the very top in the vertical (V) direction. (The Sub Pixel H and V settings subsequently apply.)<br>Setting range: 0 to 2<br>* When RGB 0% / 100% has been selected for Color Select, H=0 and V=0 will be set regardless of the settings.</td></tr>
<tr><td>Setting example: Sub Pixel H=3, V=1, Sub Pixel Offset H/V = refer to figures.<br> 
</td></tr>
<tr><td>(5)</td><td>Color Select (0/1)</td><td>Set the color and level.
<table>
<tr><td>0</td><td>RGB 0% / 100%</td><td>0% / 100%</td></tr>
<tr><td>1</td><td>User Color</td><td>The colors selected using User Color 1 and 2 are used.</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>(6)</td><td>User Color 1 R,G,B</td><td>When RGB 0% / 100% has been selected for Color Select, set any color and level to be indicated by “0%”.<br>In the case of the Sub Pixel item, the same level as the RGB level is set.<br><br>The setting range differs depending on the color depth.<br>Setting ranges by color depth<table><tr><td>8BIT</td><td>0 - 255</td></tr><tr><td>9BIT</td><td>0 - 511</td></tr><tr><td>10BIT</td><td>0 - 1023</td></tr><tr><td>11BIT</td><td>0 - 2047</td></tr><tr><td>12BIT</td><td>0 - 4095</td></tr></table></td></tr>
<tr><td>(7)</td><td>User Color 2 R,G,B</td><td>When RGB 0% / 100% has been selected for Color Select, set any color and level to be indicated by “100%”.<br>In the case of the Sub Pixel item, the same level as the RGB level is set.<br>The setting range is the same as that for User Color 1.</td></tr>
</table>

# 4.9 Image/OPT

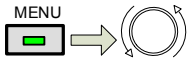
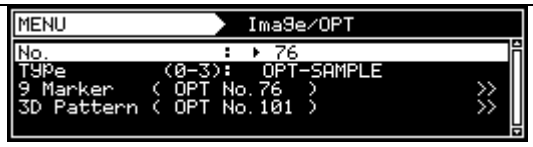
## 4.9.1 Types of image/OPT patterns

When Image/OPT has been selected using the pattern key, for instance, optional and image patterns can be selected from among the types listed below.
For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | | | |
|---|---|---|---|
| **0** | **IMAGE** | Image pattern | <br>**IMAGE**<br>A still image registered as the default can be used or any still image can be registered by the user and used. |
| **1** | **OPT-SAMPLE** | Sample optional pattern |  <br>**OPT-SAMPLE** |
| **2** | **OPT-USER** | User option patterns | Option pattern registered by the user<br>Any test pattern can be described using a programming language. |

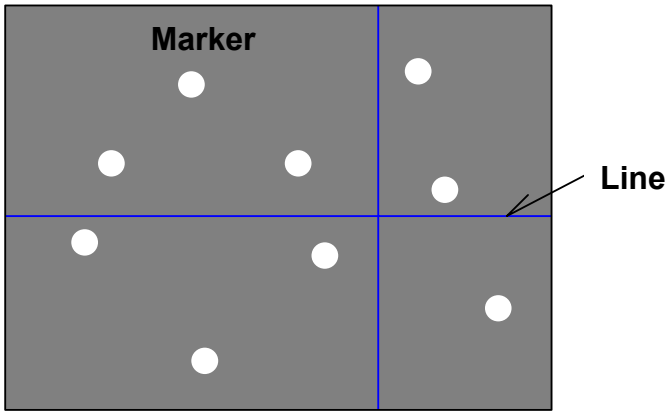
## 4.9.2 Optional and image pattern setting

The procedure for setting optional and image patterns is described below.

| | | | |
|---|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC, and then press SET. | | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET. | | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC, and then press SET. | | |
| ④ | Select **Image/OPT** using or △ INC ▽ DEC, and then press SET. | | |
| ⑤ | Press ESC. | | |
| ⑥ | Select **Image/OPT** using or △ INC ▽ DEC, and then press SET. |  <br>* 3D pattern can only be displayed or executed when the pattern has a registered license. | |
| ⑦ | **Selecting the items**<br>Select the items using or △ INC ▽ DEC, and then press SET. | ・For details of the settings when 9 Marker is selected, refer to "**4.9.3 9-marker (OPT No. 76) pattern setting**".<br>・For details of the settings when 3D Pattern is selected, refer to "**4.9.4 3D pattern (OPT No. 101) setting**". | |
| ⑧ | **Setting the pattern number**<br>Select the pattern number using or △ INC ▽ DEC, and then press SET. | **No.** | Specific numbers are allocated to the optional and image patterns. The number of the pattern to be displayed is set in **No.**<br>Setting range: 1 to 200 |
| | **Selecting the pattern type**<br>Select the pattern number using or △ INC ▽ DEC, and then press SET. | **Type** | * For further details, refer to "**4.9.1 Types of image/OPT patterns**". |

## 4.9.3 9-marker (OPT No. 76) pattern setting

Sample optional pattern No. 76 is a pattern that displays up to nine markers and lines at the desired positions.
For details on how to display the patterns, refer to "**4.9.2 Optional and image pattern setting**".
Select Type = OPT-SAMPLE, No. 76, and edit the marker and line positions using the procedure below.



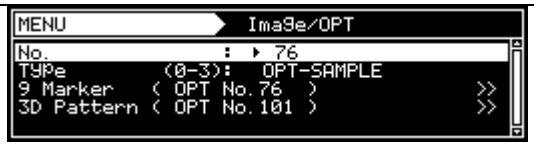
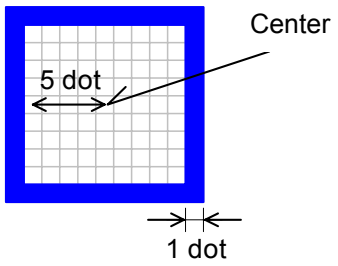

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → ○ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using ○ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Image/OPT** using ○ or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select **9 Marker (OPT No. 76)** using ○ or △ INC ▽ DEC, and then press SET. | |
| ⑤ | **Selecting the items**<br>Select the items using ○ or △ INC ▽ DEC, and then press SET.<br>**Setting the parameters**<br>Select the parameters using ○ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F, and then press SET (number keys). | For details on the parameters, refer to "**Table of 9-marker setting items**" below. |

**Table of 9-marker setting items**

<table>
<tr><td>(1)</td><td>Mark Shape (0-2)</td><td colspan="3">The shape of the markers is specified here.</td></tr>
<tr><td rowspan="3"></td><td rowspan="3"></td><td>0</td><td>Circle</td><td>Circle</td></tr>
<tr><td>1</td><td>Square</td><td>Square</td></tr>
<tr><td>2</td><td>Line</td><td>Line</td></tr>
<tr><td>(2)</td><td>Mark Fill (0/1)</td><td colspan="3">Whether to fill the markers is specified here. (disabled when Line is selected for Mark Shape)</td></tr>
<tr><td rowspan="2"></td><td rowspan="2"></td><td>0</td><td>OFF(Line)</td><td>Markers not filled ○□</td></tr>
<tr><td>1</td><td>ON</td><td>Markers fill ●■</td></tr>
<tr><td>(3)</td><td>Mark Line Width</td><td colspan="3">The width of the marker frame is set here.<br>Setting range: 1 to 15 [dot]<br><br>* When “ON” has been selected for the Mark Fill setting, the width will be 1 dot regardless of the setting.</td></tr>
<tr><td>(4)</td><td>Mark Size</td><td colspan="3">The size of the markers is set here.<br>Setting range: 1 to 9999 [dot]</td></tr>
<tr><td colspan="5">Setting example: Mark Line Width = 1<br>Mark Size = 5<br> 
</td></tr>
<tr><td>(5)</td><td>Mark Number</td><td colspan="3">The number of the markers is set here.<br>Setting range: 0 to 9</td></tr>
<tr><td>(6)</td><td>Mark Position H,V</td><td colspan="3">The center coordinate of the marker position is set here.<br>Setting range: 0 to 4095 [dot]</td></tr>
<tr><td rowspan="3">(7)</td><td rowspan="3">Mark Direction [H,V]</td><td colspan="3">The direction of the line marker is set here.</td></tr>
<tr><td>0</td><td>H</td><td>Horizontal line</td></tr>
<tr><td>1</td><td>V</td><td>Vertical line</td></tr>
<tr><td>(8)</td><td>Mark Color R,G,B</td><td colspan="3">The color of the markers is set here.<br>The setting range differs depending on the color depth. * See below.</td></tr>
<tr><td rowspan="5">(9)</td><td rowspan="5">Line Mode (0-3)</td><td colspan="3">Whether to display the lines and the shape of the lines when they are displayed are set here.</td></tr>
<tr><td>0</td><td>None</td><td>No lines</td></tr>
<tr><td>1</td><td>V-Line</td><td>Vertical line</td></tr>
<tr><td>2</td><td>H-Line</td><td>Horizontal line</td></tr>
<tr><td>3</td><td>HV-Line</td><td>Cross consisting of horizontal line and vertical line</td></tr>
<tr><td>(10)</td><td>Line Width</td><td colspan="3">The width of the lines is set here.<br>Setting range: 1 to 15 [dot]</td></tr>
<tr><td>(11)</td><td>Line Position H,V</td><td colspan="3">The positions of the lines are set here.<br>Setting range: 0 to 4095 [dot]</td></tr>
<tr><td>(12)</td><td>Line Color R,G,B</td><td colspan="3">The color of the lines is set here.<br>The setting range differs depending on the color depth. * See below.</td></tr>
</table>

*** Setting ranges by color depth**

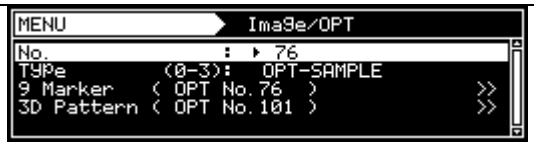
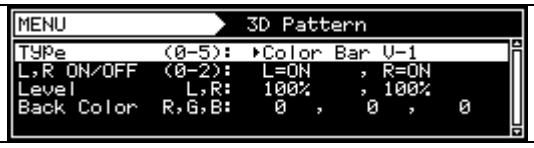
| Color Depth | Setting range |
|---|---|
| 8BIT | **0 - 255** |
| 9BIT | **0 - 511** |
| 10BIT | **0 - 1023** |
| 11BIT | **0 - 2047** |
| 12BIT | **0 - 4095** |

## 4.9.4 3D pattern (OPT No. 101) setting

Sample optional pattern No.101 is a 3D pattern.
A license is required to display this pattern. **For details, contact your dealer or the Astrodesign Sales Department.**

**Note: If your license is limited version, the setting in this section is fixed at factory default.**

For details on how to display the patterns, refer to "**4.9.2 Optional and image pattern setting**".
Select Type = OPT-SAMPLE, No. 101, and make the settings using the procedure below.
Other than shown below, the settings of "HDMI ■ Vendor Specific InfoFrame" are referenced at this time.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Image/OPT** using or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select **3D Pattern (OPT No. 101)** using or △ INC ▽ DEC, and then press SET. |  |
| ⑤ | **Selecting the items**<br>Select the items using or △ INC ▽ DEC, and then press SET.<br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details on the parameters, refer to "**Table of 3D pattern setting items**" below. |

**<List of 3D pattern setting items>**

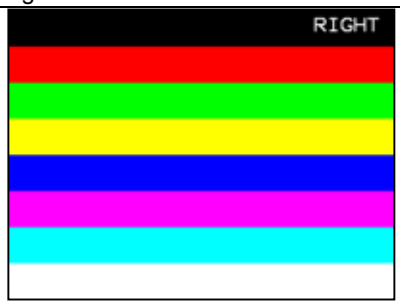
| | | | | | |
|---|---|---|---|---|---|
| (1) | **Type (0-7)** | The type of pattern is selected here. | | | |
| | | 0 | **Color Bar V-1** | | |
| | | 1 | **Color Bar V-2** | | |
| | | 2 | **Vertical Bar** | | |
| | | 3 | **Checker DOT** | The checker pattern settings are referenced. | |
| | | 4 | **Checker BLOCK** | | |
| | | 5 | **Slant Color Bar** | | |
| | | 6 | **Slant Gray Bar** | | |
| | | 7 | **Raster** | | |
| | | 8 | □×+○ | | |
| | | 9 | **Window / Circle** | | |
| | | A | **Cross Hatch (it will be referred to Cross Hatch setting).** | | |
| (2) | **L,R ON/OFF (0-2)** | On or Off is selected for the left (L) and right (R) pattern outputs.<br>At the Off setting, the color set using **Back Color** is output. | | | |
| | | 0 | **L=ON, R=ON** | | |
| | | 1 | **L=ON, R=OFF** | | |
| | | 2 | **L=OFF, R=ON** | | |
| (3) | **L, R Field ON/OFF** | On/Off setting of Left and Right patterns by field.<br>The setting color in the **Back Color** is displayed if it is set off.<br>Note) In case of Interlace signal, or except using Frame Packing mode, it will switch to L, R ON/OFF mode. | | | |
| | | **ON/OFF** | **0** | **ON** | **Pattern is output** |
| | | | **1** | **OFF** | **Pattern is not output** |
| (4) | **Level L,R** | The left (L) and right (R) pattern output levels are set here.<br>Setting range: 0 - 100 [%] | | | |
| (5) | **Off Color R,G,B** | The output color when Off has been selected as the **L,R ON/OFF or L, R Field ON/OFF** is set here.<br>Setting range: 0 - 255 | | | |
| (6) | **L, R Color (0/1)** | **0** | **Not use** | Pattern is drawn by the original value or designated color set by pattern parameter. | |
| | | **1** | **Use** | Patterb and background is drawn by the value set by **Left/ Right color** in each right and left picture. | |
| (7) | **L, R Text (0-2)** | Set display type of « **LEFT** » and « **RIGHT** » character. | | | |
| | | **0** | **OFF** | Not displayed. | |
| | | **1** | **TOP** | Display on the top. | |
| | | **2** | **CENTER** | Display in center. | |
| (8) | **BkBackLRText (0/1)** | Set black background around « **LEFT** » and « **RIGHT** » character. | | | |
| | | **0** | **OFF** | Does not set black around « **LEFT** » and « **RIGHT** » character. | |
| | | **1** | **ON** | Set black around « **LEFT** » and « **RIGHT** » character. | |

| | | | | |
|---|---|---|---|---|
| (9) | **Sub Sampling (0/1)** | In case of « Side by Side » and « Top & Bottom », set it either normal drawing or thin-out drawing. | | |
| | | **0** | **OFF** | Normal drawing |
| | | **1** | **ON** | Thin-out drawing |
| (10) | **Left/Right Color** | If you set « **Use** » in **L, R Color**, set pattern color and back color in each left and right picture. | | |
| | | **Coor(L) (R ) R,G,B** | | Set pattern color of each Left and Right picture.<br>Setting range : 0-65535 (max value will change by BitMode.) |
| | | **Back color L) (R ) R,G,B** | | Set back color.<br>Setting range : 0-65535 (max value will change by BitMode.) |
| (11) | **V.Bar Width (1-16)** | If you set « **Vertical Bar** » in **Type**, the width of vertical bar can be set.<br>Setting range : 1-16 LANE | | |
| (12) | **Slant Angle (0-B)** | If you set « Slant Color Bar » or « Slant Gray Bar » in Type, set drawing angle here. | | |
| | | **0** | **0 degree** | |
| | | **1** | **15 degrees** | |
| | | **2** | **30 degrees** | |
| | | **3** | **45 degrees** | |
| | | | | |
| | | **A** | **150 degrees** | |
| | | **B** | **165 degrees** | |
| (13) | **Checker** | A checkerboard pattern is set when Checker DOT or Checker BLOCK has been specified as **the Type setting**.<br>This is the same setting as the regular checkerboard pattern. (Refer to section “4.8 Checkerboard patterns.”) | | |
| (14) | **Window / Circle** | Set a parameter of Window / Circle that is selected in **Type.** | | |
| | | **Type (0-3)** | Select kinds of pattern | |
| | | | 0 Window | Draw one Window. |
| | | | 1 Circle | Draw one Circle. |
| | | | 2 9 Window | Draw 9 Windows. |
| | | | 3 9 Circle | Draw 9 Circles. |
| | | **Real Circle (0/1)** | In Type, if you select Circle or 9 Circle, select if the circle shoul be true-circle or not. | |
| | | | 0 OFF | Draw circle based on H and V size. |
| | | | 1 ON | Draw true-circle. |
| | | **Size H, V** | Set the drawing size of the pattern.<br>Setting range : 0-100 [%] | |
| | | **LPosition RPosition** | Set the drawing position of **Window / Circle** in each Left and Right picture.The setting value becomes the center of the pattern.<br>Setting range : 0-100 [%] | |
| | | **Position** | Set the drawing position of **9 Windows / 9 Circles**.<br>The setting value is regarded as the blank area from the edge of screen.<br>Setting range : 0-100 [%] | |
| (15) | **Cross Hatch** | If you selet **Cross Hatch** in **Type**, set the details of Cross Hatch.<br>This is the same setting as the regular Cross Hatch pattern. (Refer to section “4.10.3 Cross Hatch.”) | | |

**<Details of 3D patterns>**

［0］ Color Bar V-1

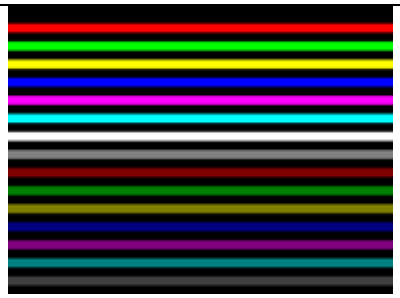
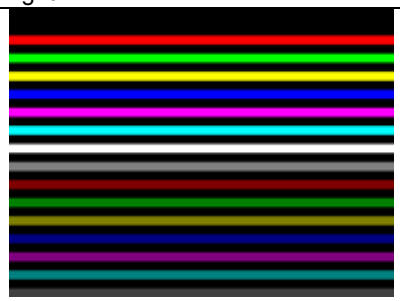
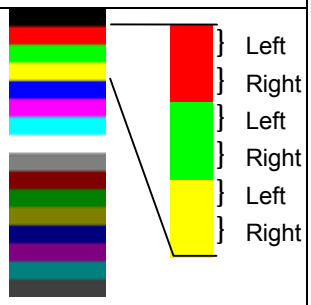
This outputs color bars in the same vertical direction on the left and right. “LEFT” and “RIGHT” are displayed in the left and right patterns.

| Left | Right |
|---|---|
| |  |



［1］ Color Bar V-2

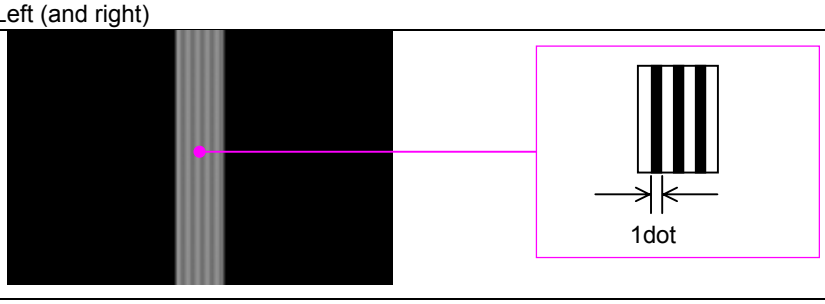
This outputs color bars in a vertical direction on the left and right, as shown below.

| Left | Right | |
|---|---|---|
|  |  |  |



［2］ Vertical Bar

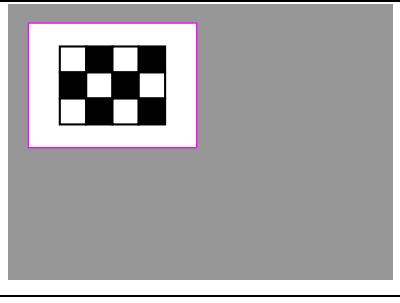
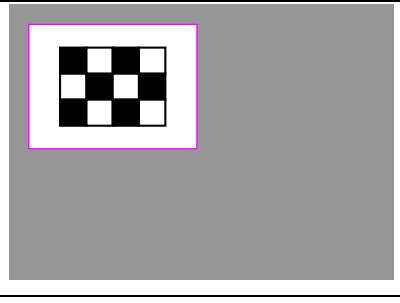
This outputs a vertical bar for every dot. The patterns on the left and right are the same.

| Left (and right) |
|---|
|  |



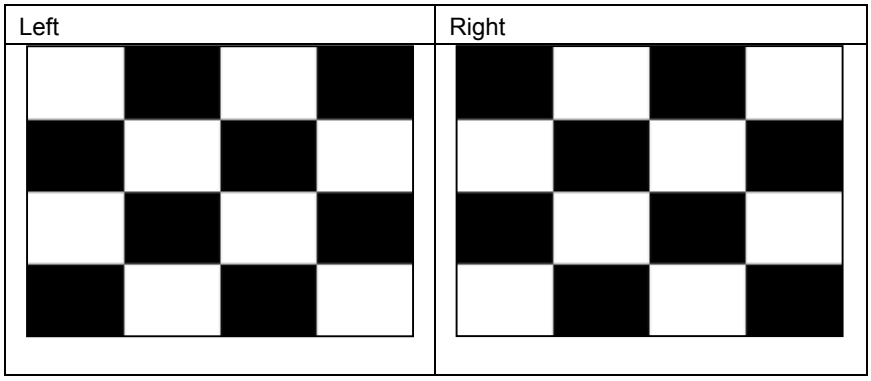
［3］ Checker DOT

This outputs a checkerboard DOTxDOT pattern. The colors in the left and right patterns are inverted.

| Left | Right |
|---|---|
|  |  |

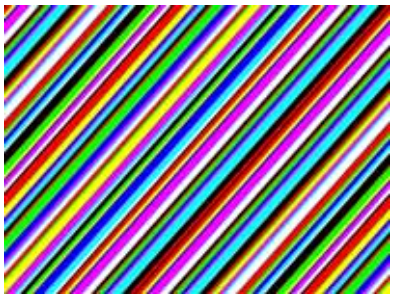
［4］ Checker BLOCK

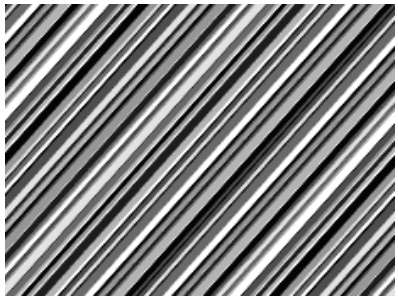
This outputs a checkerboard BLOCKxBLOCK pattern. The colors in the left and right patterns are inverted.
The patterns shown below are when the number of blocks are set to H = 4 and V = 4.




[5] Slant Color Bar, [6] Slant Gray Bar

The different width color bar / gray bar in the slant direction. The right and the left output the same picture.
The drawing angle can be changed from 0 – 165 degrees.



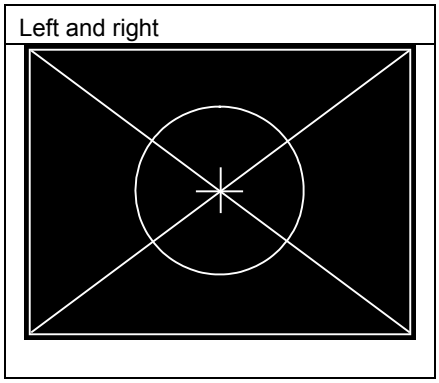


［7］ Raster

This outputs a raster pattern. The patterns on the left and right are the same.

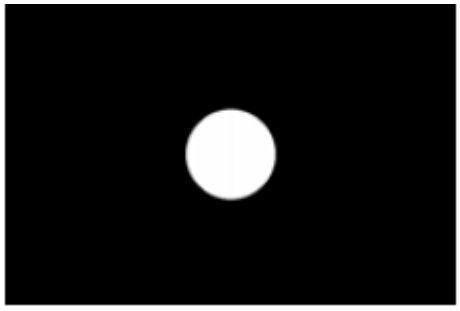
［8］ □×+○

This outputs the center mark, circle, diagonal lines and edge pattern displaying overlapping The patterns on the left and right are the same.



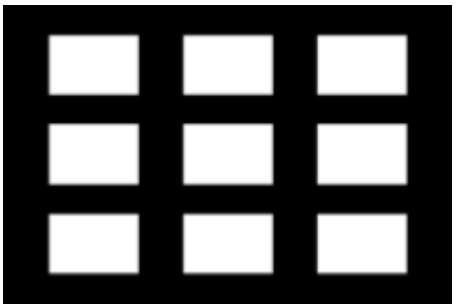
[9-1] Window [9-2] Circle

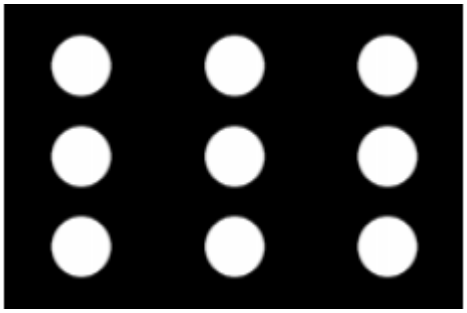
Window / circle pattern is displayed in the designated position. The left and right frame shows the same picture, but color can be set separately.



[9-3] 9 Window [9-4] 9 Corcle

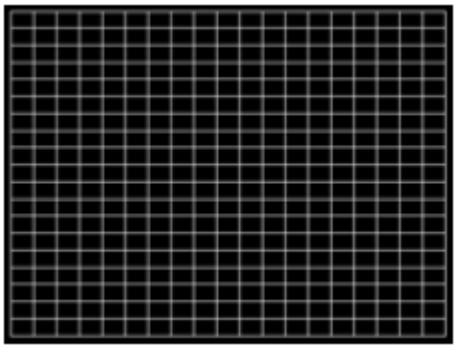
9 Window patterns are displayed in the designated position. The left and right frame shows the same picture, but color can be set separately.





[10] Cross Hatch

Cross hatch is output. The left and right frame shows the same picture, but color can be set separately.

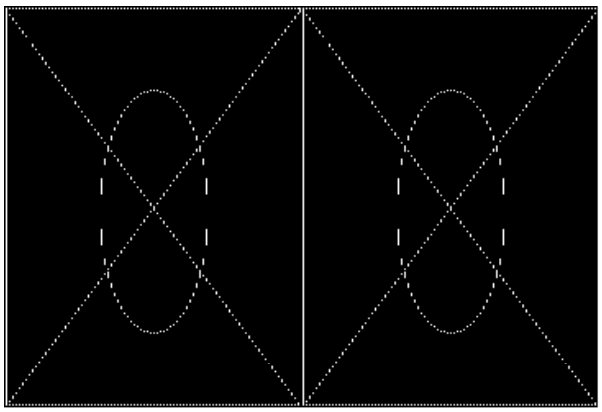


* About Sub Sampling display

In case of Side-by-Side and Top & Bottom, by setting Sub-sampling = OFF, ODD and EVEN line is not taken out and line seems more clear.

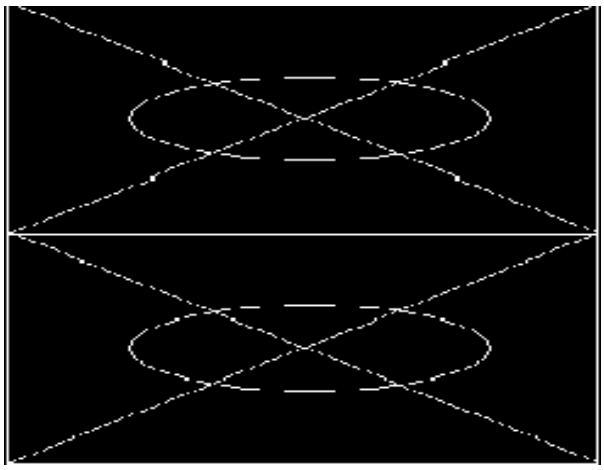
Example : Side-by-Side

If Sub Sampling is ON, the pattern is displayed according to the setting in the « 3D Extention Data » in the Vender Specific Infoframe.（e.g. : Type = □ × ＋〇）

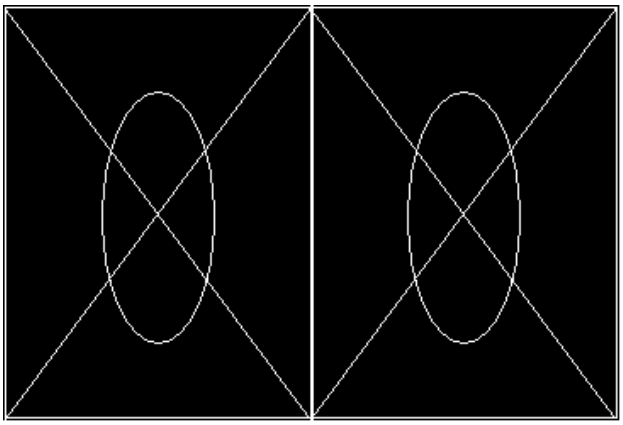


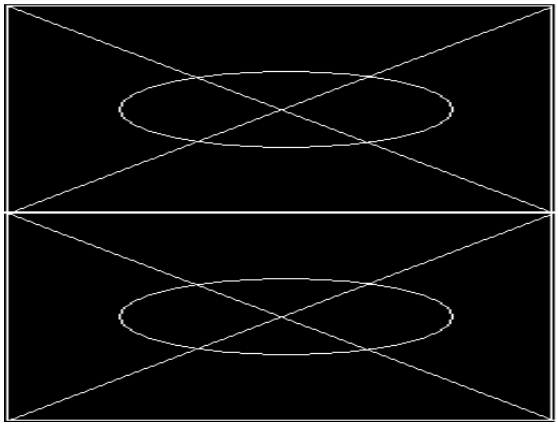
Example : Top & Bottom

If Sub Samplingn is ON, only Odd lines are drawn in each left and right picture.
（e.g. : Type = □ × ＋〇）



If Sub Sampling is OFF, all lines are drawn by the size of « Sub Sampling = ON »,
（e.g. Type = □ × ＋〇）



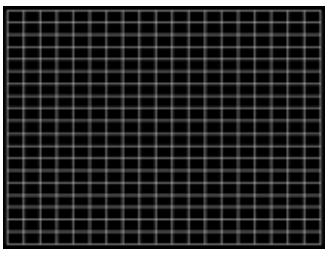


## 4.10 □× ABC Pattern

The following patterns are available as □×**ABC** patterns. Select them using the □×ABC key.
All the patterns can be superimposed onto one another, and displayed.
For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

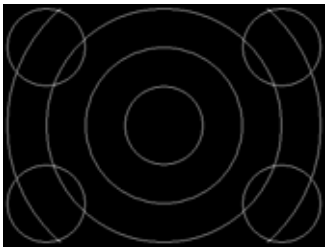
| | |
|---|---|
| **Character** | Character (text) |
| **Cross** | Crosshatch |
| **Dot** | Dot |
| **Circle** | Circle |
| **Burst** | Burst |
| □ | |
| × | |
| + | |

Character

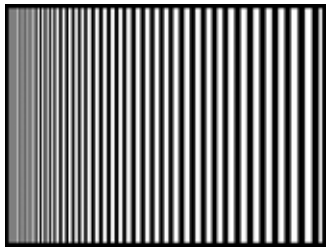


Cross Hatch

Dot

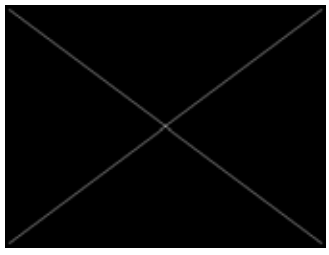


Circle

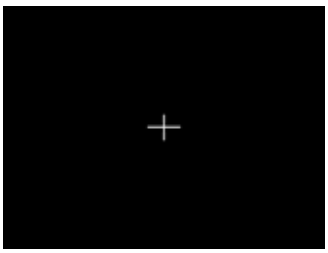


Burst

□



×



+

* There are no items to be set in □, × and + patterns.

## 4.10.1 Color settings

The colors of the □×ABC patterns themselves and their background colors can be set.

① Select **Program Edit** using MENU, or △ INC ▽ DEC, and then press SET.

② Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET.

③ Select □×**[ABC]** using or △ INC ▽ DEC, and then press SET.

④ Select **Color** using or △ INC ▽ DEC, and then press SET.

⑤ **Setting the items**

Select the items using or △ INC ▽ DEC, and then press SET.

**Setting the parameters**

Select the parameters using or △ INC ▽ DEC, and then press SET.

Alternatively:

Select the parameters using 0/STATUS to 9/F, (number keys), and then press SET.

| | |
|---|---|
| **Foreground** | The colors of the □×ABC pattern are set here (in the order of RGB from the left).<br>The setting range differs depending on the color depth.<br>* Refer to below list |
| **Background** | The background color is set here (in the order of RGB from the left).<br>The setting range differs depending on the color depth.<br>* Refer to below list |

*** Setting ranges by color depth**

| | |
|---|---|
| 8BIT | **0 - 255** |
| 9BIT | **0 - 511** |
| 10BIT | **0 - 1023** |
| 11BIT | **0 - 2047** |
| 12BIT | **0 - 4095** |

## 4.10.2 Character patterns

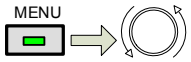
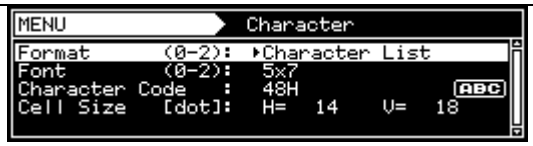
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or INC DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or INC DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or INC DEC, and then press SET. | |
| ④ | Select **Character** using or INC DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select □×**[ABC]** using or INC DEC, and then press SET. | |
| ⑦ | Select **Character** using or INC DEC, and then press SET. |  |
| ⑧ | **Setting the items**<br>Select the items using or INC DEC, and then press SET.<br>**Setting the parameters**<br>Select the parameters using or INC DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys). | For details, refer to "**Table of character setting items**" below. |

**Table of character setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Format(0-2)** | The format is selected here. | | |
| | | 0 | **Character List** | |
| | | 1 | **All 1-Character** | |
| | | 2 | **Corner&Center** | |
| (2) | **Font(0-2)** | The font size is set here. | | |
| | | 0 | **5x7** | |
| | | 1 | **7x9** | |
| | | 2 | **16x16** | |
| (3) | **Character Code** | The character code is selected here.<br>Setting range: 20h to FFh<br>When selecting characters directly, select ABC.<br>For details on the operation procedure, refer to “2.4 Changing program names”. | | |
| (4) | **Cell Size [dot]** | The size of each character is set here. | | |
| | | **H** | | Set the size of the character in the horizontal direction. |
| | | **V** | | Set the size of the character in the vertical direction. |

## 4.10.3 Crosshatch patterns

The crosshatch pattern settings are described below.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU<br>or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC<br>▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using<br>or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Cross Hatch** using or △ INC<br>▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |

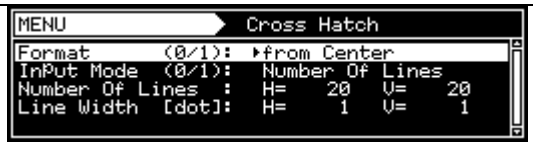
| | | |
|---|---|---|
| ⑥ | Select □×**[ABC]** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑦ | Select **Cross Hatch** using ◯ or △ INC ▽ DEC, and then press SET. |  |
| ⑧ | **Setting the items**<br>Select the items using ◯ or △ INC ▽ DEC, and then press SET.<br><br>**Setting the parameters**<br>Select the parameters using ◯ or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details, refer to "**Table of crosshatch setting items**" below. |

**Table of crosshatch setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Format(0-2)** | The origin point of the pattern drawing is set here. | | |
| | | 0 | **From Center** | The pattern is drawn using the screen center as the origin point. |
| | | 1 | **From Top-Left** | The pattern is drawn using the top left as the origin point. |
| (2) | **InputMode(0/1)** | The input mode is selected here. | | |
| | | 0 | **Number Of Line** | This sets the number of lines to be displayed on the screen. |
| | | 1 | **Interval(dot)** | This sets the interval between the blocks. |
| (3)-a | **When Input Mode =Number Of Lines** | This sets the number of lines to be displayed on the screen. | | |
| | | **Number Of Lines : H=** | | Set the number of lines in the horizontal direction. |
| | | **Number Of Lines : V=** | | Set the number of lines in the vertical direction. |
| (3)-b | **When Input Mode = Interval(dot)** | This sets the interval between the blocks. | | |
| | | **Interval [dot] : H=** | | Set the interval between the blocks in the horizontal direction. |
| | | **Interval [dot] : V=** | | Set the interval between the blocks in the vertical direction. |
| (4) | **Line Width [dot]** | The width of the lines is set here. | | |
| | | **Line Width [dot]: H=** | | Set the width of the lines in the horizontal direction. |
| | | **Line Width [dot]: V=** | | Set the width of the lines in the vertical direction. |

## 4.10.4 Dot patterns

The dot pattern settings are described below.

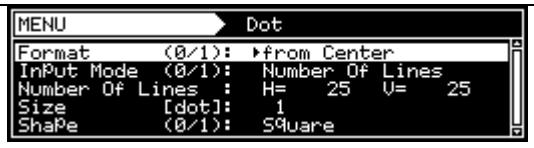
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU, or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Dot** using or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select □×**[ABC]** using or △ INC ▽ DEC, and then press SET. | |
| ⑦ | Select **Dot** using or △ INC ▽ DEC, and then press SET. |  |
| ⑧ | **Setting the items**<br>Select the items using or △ INC ▽ DEC, and then press SET.<br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details, refer to "**Table of dot setting items**" below. |

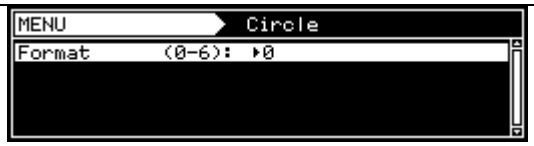
**Table of dot setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Format(0-2)** | The origin point of the pattern drawing is set here. | | |
| | | 0 | **From Center** | The pattern is drawn using the screen center as the origin point. |
| | | 1 | **From Top-Left** | The pattern is drawn using the top left as the origin point. |
| (2) | **InputMode(0/1)** | The input mode is selected here. | | |
| | | 0 | **Number Of Line** | This sets the number of lines to be displayed on the screen. |
| | | 1 | **Interval(dot)** | This sets the interval between the dots. |
| (3)-a | **When Input Mode =Number Of Lines** | This sets the number of lines to be displayed on the screen. | | |
| | | **Number Of Lines : H=** | | Set the number of lines in the horizontal direction. |
| | | **Number Of Lines : V=** | | Set the number of lines in the vertical direction. |
| (4)-b | **When Input Mode = Interval(dot)** | This sets the interval between the blocks. | | |
| | | **Interval [dot] : H=** | | Set the interval between the blocks in the horizontal direction. |
| | | **Interval [dot] : V=** | | Set the interval between the blocks in the vertical direction. |
| (5) | **Size [dot]** | The size is set here. Setting range: 1 to 15 [Dot] | | |
| (6) | **Shape** | The shape is set here. | | |
| | | 0 | **Circle** | The dots are drawn in the form of circles. |
| | | 1 | **Square** | The dots are drawn in the form of squares. |

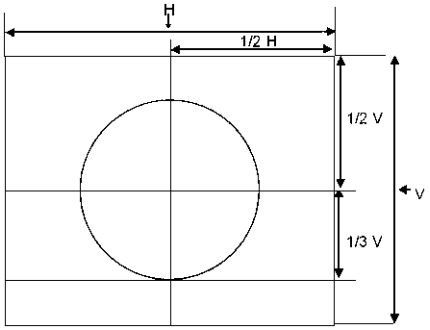
## 4.10.5 Circle patterns

The circle pattern settings are described below.

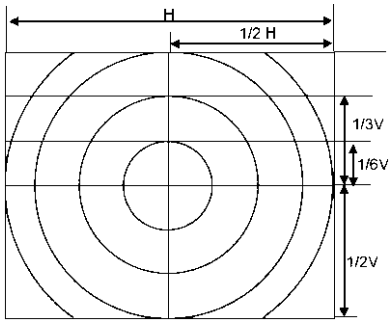
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Circle** using or △ INC ▽ DEC, and then press SET. | |

| | | |
|---|---|---|
| ⑤ | Press ESC. | |
| ⑥ | Select □×**[ABC]** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑦ | Select **Circle** using ◯ or △ INC ▽ DEC, and then press SET. |  |
| ⑧ | **Setting the items**<br>Select **Format** using ◯ or △ INC ▽ DEC, and then press SET. | Select the shapes of the circles from the options below. |
| | **Setting the parameters**<br>Select the parameters using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | Format 0<br>・Single circle<br>・Center: 1/2H, 1/2V<br>・Radius: 1/3V |
| | | Format 1<br>・Concentric circles 1<br>・Center: 1/2H, 1/2V<br>・Radius (from the center): 1/6V, 1/3V, 1/2V, 1/2H |
| | | Format 2<br>・Format 1 + (circles with radius 1/6V × 4) |
| | | Format 3<br>・Concentric circles 2<br>・Center: 1/2H, 1/2V<br>・Radius (from the center): One circle added inside the 1/6V, 1/3V and 1/2V circles, 1/2 radius added |
| | | Format 4<br>・Consecutive circles with radius 1/6V<br>・Top/bottom and left/right symmetry with center (1/2H, 1/2V) as the reference |
| | | Format 5<br>・Single filled-in circle<br>・Center: 1/2H, 1/2V<br>・Radius: 1/3V |
| | | Format 6<br>・Filled-in circles with radius 1/6V × 5 |

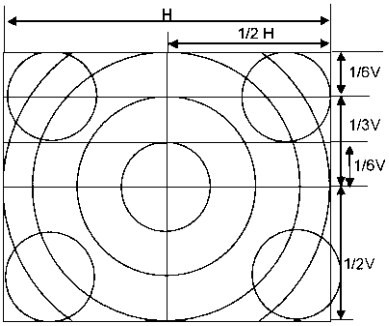
0


H
1/2 H
1/2 V
V
1/3 V

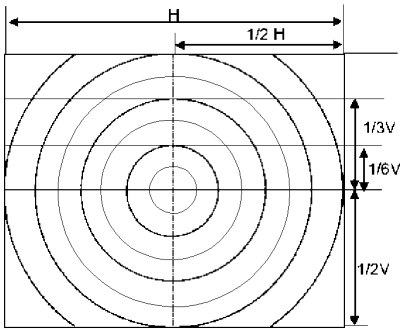
1


H
1/2 H
1/3V
1/6V
1/2V

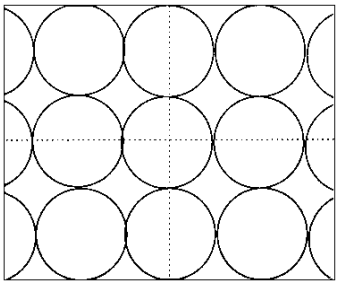
2


H
1/2 H
1/6V
1/3V
1/6V
1/2V

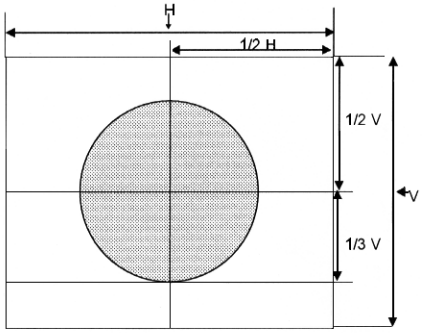
3


H
1/2 H
1/3V
1/6V
1/2V

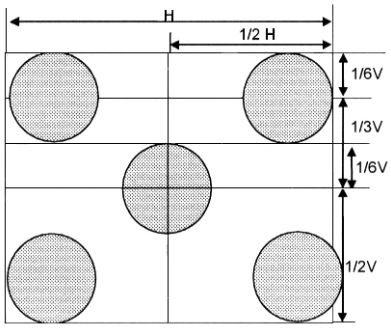
4



5

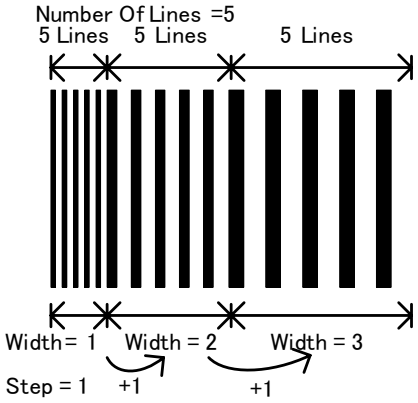

H
1/2 H
1/2 V
V
1/3 V

6


H
1/2 H
1/6V
1/3V
1/6V
1/2V

## 4.10.6 Burst patterns

In burst patterns, the line width increases gradually.




The burst pattern settings are described below.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → ◯, or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Burst** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select □×**[ABC]** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑦ | Select **Burst** using ◯ or △ INC ▽ DEC, and then press SET. | |

| | | |
|---|---|---|
| ⑧ | **Setting the items**<br>Select the items using or △ INC ▽ DEC, and then press SET. | For details, refer to "**Table of burst setting items**" below. |
| | **Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | |

**Table of burst setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Format(0-2)** | The origin point of the pattern drawing is set here. | | |
| | | 0 | **L->R** | The line width increases from left to right. |
| | | 1 | **L<-R** | The line width increases from right to left. |
| | | 2 | **L<-C->R** | The line width increases from the center to the left edge and from the center to the right edge. |
| | | 3 | **L->C<-R** | The line width increases from the left edge to the center and from the right edge to the center. |
| | | 4 | **T->B** | The line width increases from top to bottom. |
| | | 5 | **T<-B** | The line width increases from bottom to top. |
| | | 6 | **T<-C->B** | The line width increases from the center to the top edge and from the center to the bottom edge. |
| | | 7 | **T->C<-B** | The line width increases from the top edge to the center and from the bottom edge to the center. |
| (2) | **Number of Line** | The number of lines set here are repeatedly drawn with the same thickness.<br>After the set number of lines have been drawn, the thickness is increased by an amount equivalent to the **Step** setting, and this is repeated.<br>Setting range: 1 to 99 | | |
| (3) | **Step** | The step is set here.<br>Setting range: 0 to 99 [dot] | | |

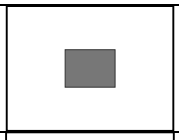
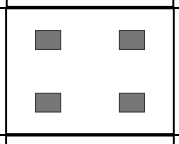
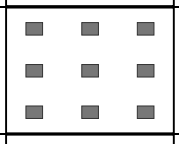
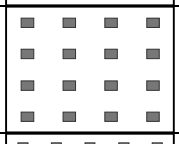
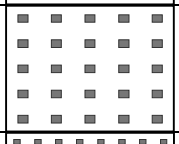
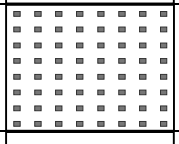
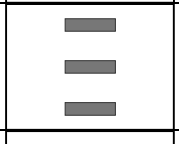
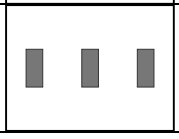
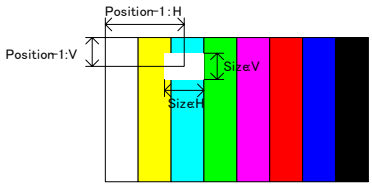
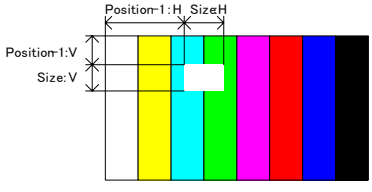
# 4.11 Window patterns

Mono-color rectangles can be displayed as window patterns. The window patterns can also be used to check moving images (refer to "**Action Settings**").

## 4.11.1 Types of window patterns

When window has been selected using the pattern key, for instance, window patterns can be selected from among the types listed below.

For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

| | | | |
|---|---|---|---|
| **0** | **1 Window** | 1 window displayed |  |
| **1** | **4 Window** | 4 windows displayed |  |
| **2** | **9 Window** | 9 windows displayed |  |
| **3** | **16 Window** | 16 windows displayed |  |
| **4** | **25 Window** | 25 windows displayed |  |
| **5** | **64 Window** | 64 windows displayed |  |
| **6** | **3 Window In V Row** | 3 windows in a vertical row displayed |  |
| **7** | **3 Window In H Row** | 3 windows in a horizontal row displayed |  |
| **8** | **User Pos Center** | Window displayed at the desired position<br><br>* The coordinates of the window center are specified as the origin point of the display. |  |
| **9** | **User Pos Corner** | Window displayed at the desired position<br><br>* The coordinates of the top left of the window are specified as the origin point of the display. |  |

## 4.11.2 Window pattern settings

The types of window patterns can be selected using the procedure below.

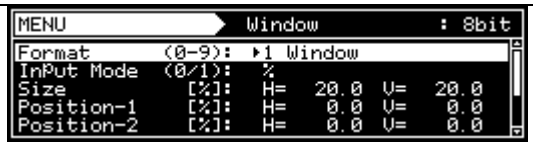
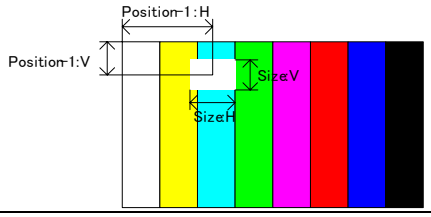
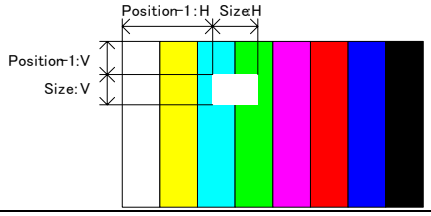
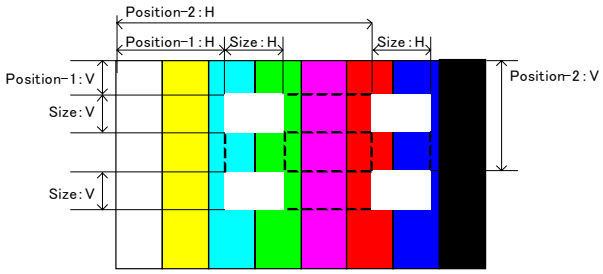
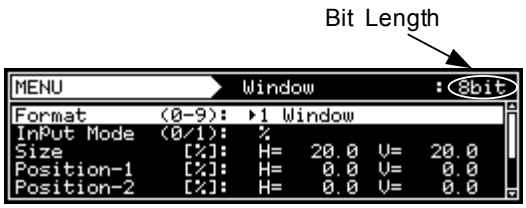
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU, or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △ INC, ▽ DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Window** using or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Press ESC. | |
| ⑥ | Select **Window** using or △ INC ▽ DEC, and then press SET. |  |
| ⑦ | **Selecting the items**<br>Select the items using or △ INC ▽ DEC, and then press SET.<br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F, and then press SET. | For details on the parameters, refer to "**Table of window pattern setting items**" below. |

**Table of window pattern setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Format(0-9)** | The window display format is set here. | | |
| | | 0 | **1 Window** | One window is displayed at the center of the screen. |
| | | 1 | **4 Window** | The screen is divided into four areas, and a window is displayed in the center of each area. The window size is set using the area divided into the four areas as 100%. |
| | | 2 | **9 Window** | The screen is divided into nine areas, and a window is displayed in the center of each area. |
| | | 3 | **16 Window** | The screen is divided into 16 areas, and a window is displayed in the center of each area. |
| | | 4 | **25 Window** | The screen is divided into 32 areas, and a window is displayed in the center of each area. |
| | | 5 | **64 Window** | The screen is divided into 64 areas, and a window is displayed in the center of each area. |
| | | 6 | **3 Window In V Row** | The screen is divided vertically into three areas, and a window is displayed in the center of each area. |
| | | 7 | **3 Window In H Row** | The screen is divided horizontally into three areas, and a window is displayed in the center of each area. |
| | | 8 | **User Pos Center** | The window can be displayed at any position. The coordinates of the window center are specified as the origin point of the display.   |
| | | 9 | **User Pos Corner** | The window can be displayed at any position. The coordinates of the top left of the window are specified as the origin point of the display.   |
| (2) | **Input Mode** | The input mode for the window size and display position is specified here. | | |
| | | 0 | **%** | The size and position are set as a percentage of the entire screen. |
| | | 1 | **dot** | The size and position are set in 1-dot increments. |
| (3) | **Size** | The window size is set here.<br>The setting procedure differs depending on the **Input Mode** setting. | | |

<table>
<tr><td>(4)</td><td>Position-1<br>Position-2</td><td colspan="2">Specify the coordinates of the window when Format 8: User Pos Center or Format 9: User Pos Corner has been selected.<br>Up to four windows are displayed depending on the settings of H (% or dot) and V (% or dot) for Position-1 and Position-2.<br><br>Below is an example of when Format: 9 is set and four windows are displayed at the same time.<br> 
</td></tr>
<tr><td></td><td></td><td>H=</td><td>The window center position or horizontal direction of the start position is set here.</td></tr>
<tr><td></td><td></td><td>V=</td><td>The window center position or vertical direction of the start position is set here.</td></tr>
<tr><td>(5)</td><td>Color R G B</td><td colspan="2">The window colors and level are set here.<br>Bit Length<br> 

The setting range differs depending on the color depth.</td></tr>
</table>

| **Setting ranges by color depth** | |
|---|---|
| 8BIT | **0 - 255** |
| 9BIT | **0 - 511** |
| 10BIT | **0 - 1023** |
| 11BIT | **0 - 2047** |
| 12BIT | **0 - 4095** |
| | |

# 4.12 Cursor patterns

A cursor can be displayed on screens with pattern displays.
The cursor can be moved to any point, and its position on the screen can be displayed.

## 4.12.1 Cursor settings

The cursor can be selected using the procedure below.
For further details on pattern selection, refer to "**2.2.4 Selecting the pattern data**".

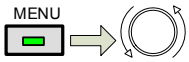
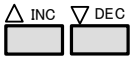
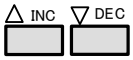
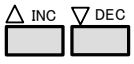
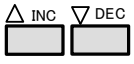
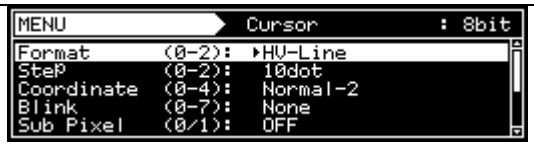
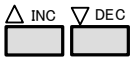
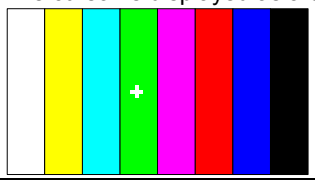
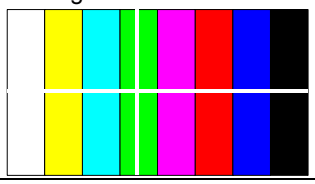
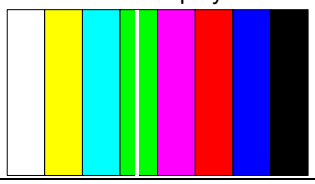
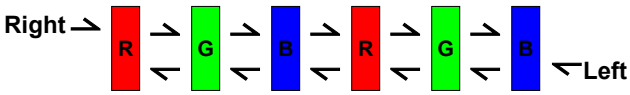
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC  , and then press SET . | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC , and then press SET . | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC  , and then press SET . | |
| ④ | Select **Cursor** using or △ INC ▽ DEC  , and then press SET . | |
| ⑤ | Press ESC . | |
| ⑥ | Select **Cursor** using or △ INC ▽ DEC  , and then press SET . |  |
| ⑦ | **Selecting the items**<br>Select the items using or △ INC ▽ DEC  , and then press SET .<br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC , and then press SET .<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET . | For details on the parameters, refer to "**Table of cursor pattern setting items**" below. |

**Table of cursor pattern setting items**

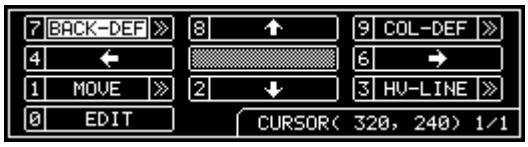
| | | | | |
|---|---|---|---|---|
| (1) | **Format(0-2)** | The shape of the cursor is set here. | | |
| | | 0 | **5x5 Cross** | The cursor is displayed as a 5×5-pixel cross.  |
| | | 1 | **HV-Line** | The cursor is displayed as a cross whose horizontal and vertical dimensions extend to the edges of the screen.  |
| | | 2 | **V-Line** | The cursor is displayed as a vertical line.  |
| (2) | **Step** | The amount of cursor movement when the cursor is to be moved is set here. | | |
| | | 0-2 | **1dot /10dot /100dot** | |
| (3) | **Coordinate** | The coordinate display method is set here. | | |
| | | 0 | **OFF** | No coordinates are displayed. |
| | | 1 | **Normal-1** | The horizontal and vertical coordinates and step are displayed in 1-pixel increments. |
| | | 2 | **Normal-2** | The horizontal and vertical coordinates are displayed in sub-pixel increments, and the step is displayed in 1-pixel increments. |
| | | 3 | **Reverse-1** | Normal-1 is inverted at the top and bottom, and displayed. |
| | | 4 | **Reverse-2** | Normal-2 is inverted at the top and bottom, and displayed. |

<table>
<tr><td rowspan="3">(4)</td><td rowspan="3">Blink</td><td colspan="3">Whether the cursor is to blink and the blink interval are set here.</td></tr>
<tr><td>0</td><td>None</td><td>The cursor does not blink.</td></tr>
<tr><td>1-7</td><td>1V /2V /4V /8V /16V /32V /64V</td><td>The cursor blinks for each 1 V (vertical sync period) to 64 V and then goes off, and this is repeated.</td></tr>
<tr><td rowspan="3">(5)</td><td rowspan="3">Sub Pixel</td><td colspan="3">Set whether the cursor is to be moved in 1-pixel increments or sub-pixel increments.<br>Operation in sub-pixel increments:<br>  </td></tr>
<tr><td>0</td><td>OFF</td><td>The cursor is moved in 1-pixel increments.</td></tr>
<tr><td>1</td><td>ON</td><td>The cursor is moved in sub-pixel increments.</td></tr>
<tr><td rowspan="3">(6)</td><td rowspan="3">Overlay</td><td colspan="3">Set whether the cursor is to be displayed on top of the test pattern or on top of the background color set using the Color Back R G B item.</td></tr>
<tr><td>0</td><td>OFF</td><td>The cursor is displayed on top of the background color set by the Color Back R G B item.</td></tr>
<tr><td>1</td><td>ON</td><td>The cursor is displayed on top of the test pattern.</td></tr>
<tr><td rowspan="3">(7)</td><td rowspan="3">Intersection</td><td colspan="3">The shape of the intersection is set here.</td></tr>
<tr><td>0</td><td>Normal</td><td>The intersection is filled in as a cross.</td></tr>
<tr><td>1</td><td>Space</td><td>The intersection is displayed in black.</td></tr>
<tr><td>(8)</td><td>Color Cursor R, G, B</td><td colspan="3">The cursor color and level are set here.<br><br>The setting range differs depending on the color depth.<br><br>Setting ranges by color depth<br>8BIT 0 - 255<br>9BIT 0 - 511<br>10BIT 0 - 1023<br>11BIT 0 - 2047<br>12BIT 0 - 4095</td></tr>
<tr><td>(9)</td><td>Color Back R, G, B</td><td colspan="3">The background color and level are set here. However, when On has been selected as the Overlay item setting, the test pattern becomes the background, so this setting is canceled.<br>The setting procedure is the same as that for Color Cursor R, G, B.</td></tr>
</table>

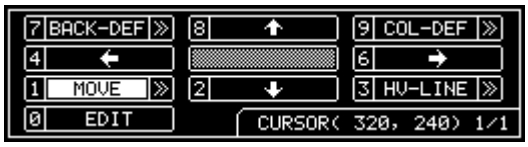
## 4.12.2 Cursor operations

Available cursor operations include moving the cursor and changing the cursor level.

**Operation screen display**

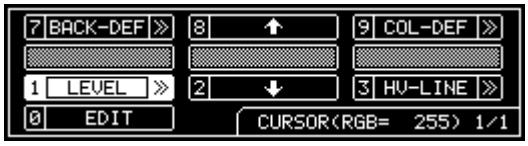
| | |
|---|---|
| CURSOR → DETAIL |  |

**Moving the cursor**

| | | | |
|---|---|---|---|
| ① | Select **MOVE** using 1. |  | |
| ② | **When using the number keys**<br>4/A, 6/C, 2, 8/E | **4** | The cursor moves to the left. |
| | | **6** | The cursor moves to the right. |
| | | **2** | The cursor moves downward. |
| | | **8** | The cursor moves upward. |
| ③ | **When using the jog dial** | When 4/A or 6/C is pressed and the jog dial is turned, the cursor moves to the left or right. | |
| | | When 2 or 8/E is pressed and the jog dial is turned, the cursor moves down or up. | |

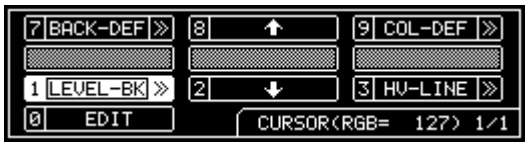
**Changing the cursor level**

* These steps change the **Color Cursor R, G, B** settings.

| | | | |
|---|---|---|---|
| ① | Select **LEVEL** using 1.<br>*** The level of the sub-pixel cursor cannot be changed.** |  | |
| ② | **(When using the number keys)**<br>2, 8/E | **2** | The level is decremented. |
| | | **8** | The level is incremented. |
| ③ | **(When using the jog dial)** | When turned counter-clockwise | The level is decremented. |
| | | When turned clockwise | The level is incremented. |

**Changing the background level**

* These steps change the **Color Back R, G, B** settings.

| | | | |
|---|---|---|---|
| ① | Select **LEVEL-BK** using 1 .<br>Select **BACK-DEF** using 7/D . |  | |
| ② | **(When using the number keys)**<br>2 , 8/E | **2** | The level is decremented. |
| | | **8** | The level is incremented. |
| ③ | **(When using the jog dial)** | **When turned counter-clockwise** | The level is decremented. |
| | | **When turned clockwise** | The level is incremented. |

**Changing the cursor shape**

* These steps change the **Format** settings.

| | | |
|---|---|---|
| 3 | **5x5 CROSS** | 5×5-pixel cross |
| | **HV-LINE** | Cross that covers the entire screen |
| | **V-LINE** | Vertical line |

**Changing the background color**

| | | |
|---|---|---|
| 7/D | **BACK-DEF** | **Color Back R, G, B** settings |
| | **BACK-W** | White |
| | **BACK-R** | Red |
| | **BACK-G** | Green |
| | **BACK-B** | Blue |
| | **BACK-BLK** | Black |

**Inverting the cursor color**

| | | |
|---|---|---|
| 9/F | **COL-DEF** | Normal |
| | **COL-INV** | Inverted |

# 4.13 Name/List patterns

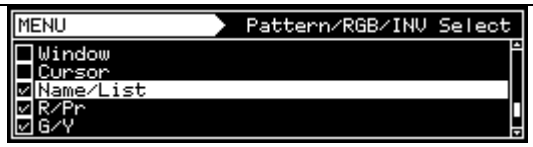
Information such as the setting data and execution results as well as the images (number of colors restricted) are contained in the Name/List patterns, and they can be superimposed onto other patterns.

**Types of Name/List patterns**

| | | | |
|---|---|---|---|
| NAME/LIST | NAME | Program name display | For details, refer to "**4.13.2 Name**". |
| | EDID | EDID setting data display | For details, refer to "**4.13.5 EDID**". |
| | EDID(HEX) | EDID setting data HEX display | For details, refer to "**4.13.5 EDID**". |
| | DDC/CI | DDC-CI setting data display | For details, refer to "**4.13.6 DDC/CI**". |
| | HDCP | HDCP authentication screen display | For details, refer to "**4.13.3 HDCP**". |
| | CEC | CEC setting data display | For details, refer to "**5.2.4 CEC**". |
| | HDMI | HDMI setting data display | For details, refer to "**4.13.4 HDMI list**". |
| | TIMING | Timing data (parameters, etc.) display | For details, refer to "**4.13.8 Timing** data list". |
| | IMAGE | Image pattern list display | For details, refer to "**4.13.9 Image** pattern list". |
| | OPT-USER | User optional pattern list display | For details, refer to "**4.13.10 OPT-USER** pattern list". |
| | ARC | Audio Return Channel data display | For details, refer to "**5.2.9 ARC（Audio Return Channel）**". |

## 4.13.1 Name/List display

The Name/List functions can be selected using the procedure below.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU, or △INC ▽DEC, and then press SET. | |
| ② | Select **Pattern (PAT)** using or △INC ▽DEC, and then press SET. | |
| ③ | Select **Pattern/RGB/INV select** using or △INC ▽DEC, and then press SET. | |
| ④ | Select **Name/List** using or △INC ▽DEC, and then press SET. |  |

⑤

Press ESC.

⑥

Select **Name/List** using ◯ or △ INC ▽ DEC, and then press SET.

⑦

**Selecting the items**

Select the items using ◯ or △ INC ▽ DEC, and then press SET.

Specify the pattern to be displayed by **Type**.
Some patterns have advanced settings.

**Type**

| | | |
|---|---|---|
| 0 | **NAME** | The names of programs are displayed. |
| 1 | **HDCP** | The HDCP authentication screen is displayed. |
| 2 | **EDID** | The EDID is displayed as text. |
| 3 | **EDID(HEX)** | The EDID is displayed in hexadecimal format. |
| 4 | **DDC/CI** | DDC/CI is used. |
| 5 | **CEC** | The CEC execution list is displayed. |
| 6 | **ARC** | The ARC execution list is displayed. |
| 7 | **HDMI** | A list of the HDMI-related data is displayed. |
| 8 | **Timing** | A list of timing that is being output is displayed. |
| 9 | **Image** | The information of the image patterns registered in the internal memory or on the CF card is displayed. |
| A | **OPT-USER** | The names and sizes of the user optional patterns registered in the internal memory or on the CF card is displayed. |

**Setting the parameters**

Select the parameters using ◯ or △ INC ▽ DEC, and then press SET.

Alternatively:

Select the parameters using 0/STATUS to 9/F (number keys), and then press SET.

## 4.13.2 Name list

The display method can be set when Name has been selected as the Type setting.

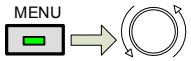
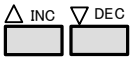
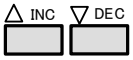
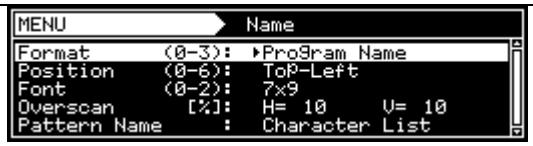
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC  , and then press SET . | |
| ② | Select **Pattern (PAT)** using or △ INC ▽ DEC , and then press SET . | |
| ③ | Select **Pattern/RGB/INV select** using or △ INC ▽ DEC  , and then press SET . | |
| ④ | Select **Name/List** using or △ INC ▽ DEC , and then press SET . | |
| ⑤ | Press ESC . | |
| ⑥ | Select **Name/List** using or △ INC ▽ DEC , and then press SET . | |
| ⑦ | Select **Name** using or △ INC ▽ DEC , and then press SET . |  |
| ⑧ | **Selecting the items**<br>Select the items using or △ INC ▽ DEC , and then press SET .<br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC , and then press SET .<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET . | For details, refer to "**Table of name setting items**" below. |

**Table of name setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Format(0-3)** | The display contents of Name are set here. | | |
| | | 0 | **Program Name** | The program names are displayed. |
| | | 1 | **Pattern Name** | The pattern names are displayed. |
| | | 2 | **Program & Pattern Name** | The program and pattern names are displayed at the same time. |
| | | 3 | **Program Name, Freq** | The program names and video timing frequencies are displayed. |
| (2) | **Position** | The display position of the name is set here. | | |
| | | 0 | **Center** | The name is displayed at the center of the screen. |
| | | 1 | **Top-Left** | The name is displayed at the top left of the screen. |
| | | 2 | **Bottom-Left** | The name is displayed at the bottom left of the screen. |
| | | 3 | **Top-Right** | The name is displayed at the top right of the screen. |
| | | 4 | **Bottom-Right** | The name is displayed at the bottom right of the screen. |
| | | 5 | **Top-Center** | The name is displayed at the top center of the screen. |
| | | 6 | **Bottom Center** | The name is displayed at the bottom center of the screen. |
| (3) | **Font** | The font size is set here. | | |
| | | 0 | **5x7** | 5 × 7 is set as the font size. |
| | | 1 | **7x9** | 7 × 9 is set as the font size. |
| | | 2 | **16x16** | 16 × 16 is set as the font size. |
| (4) | **Overscan [%]** | The display position can be adjusted in such a way that the display is not hidden to simulate an overscanning monitor. | | |
| | | **H=** | | The horizontal overscanning ratio is set here. |
| | | **V=** | | The vertical overscanning ratio is set here. |
| (5) | **Pattern Name** | The pattern names are edited here.<br>For details on the editing procedure, refer to "**2.4 Changing program names**". | | |

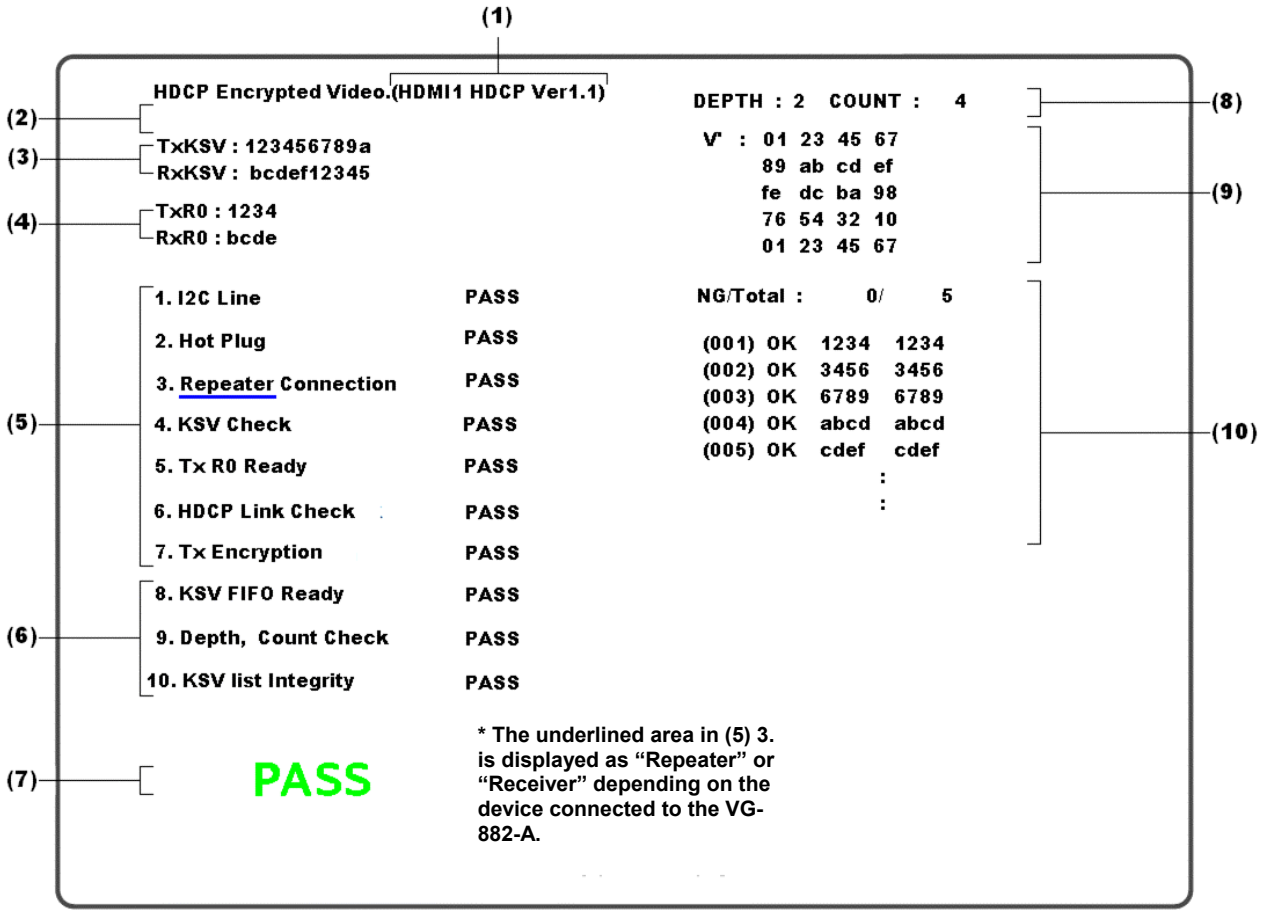
## 4.13.3 HDCP list

The HDCP authentication results can be shown on the display.

(For details of the HDCP settings and execution, refer to "**5.2.5 HDCP**".)

**Displaying the HDCP authentication screen**

| | | |
|---|---|---|
| ① | NAME/LIST DETAIL → NAME/LIST DETAIL | |
| ② | **Selecting HDCP**<br>Select **HDCP** using or △ INC ▽ DEC,<br>and then press SET. | |
| ③ | **Advanced settings**<br>For the advanced HDCP settings, refer to "**5.2.5 HDCP**". | |




Details of the displayed information are given below.

**HDCP authentication screen display data**

| | | |
|---|---|---|
| (1) | This displays the port selected in **c) Display Select** of "**8.1 Execution procedure**".<br>(When the HDCP authentication is successful, the HDCP version is displayed next to the port; when it has failed, an error message is displayed next to the port.) | |
| (2) | This displays the EDID reading results.<br>(The results are displayed only when **AUTO** has been selected as the **HDMI or DVI** setting in "**5.2.2 HDMI setting procedure**" or when **EDID Check** has been selected as the **Version** setting in "**5.2.5 HDCP setting list**".) | |
| (3) | The Key Selection Vectors are displayed here among the HDCP keys. "TxKSV" is the key selection vector of the transmitter; "RxKSV" is the key selection vector of the receiver. | |
| (4) | The Synchronization Verification Values calculated by the initial authentication are displayed here. "TxR0" is the value calculated for the transmitter; "RxR0" is the value calculated for the receiver. | |
| (5) | The authentication status of the initial authentication is displayed here. | An item with "PASS" denotes an item that has been successfully authenticated. |
| (6)* | The authentication status of the second authentication for a repeater is displayed here. | |
| (7) | If all authentication attempts are successful, "PASS (green)" appears; otherwise, "NG (red)" appears. | |
| (8)* | This displays the DEPTH (number of stages) and COUNT (total number of connections) of the devices connected to the receiver that is connected to the VG-882-A. | |
| (9)* | This displays the value (V'), which is used to verify the adequacy of the KSV list of devices connected to the receiver that is connected to the VG-882-A. | |

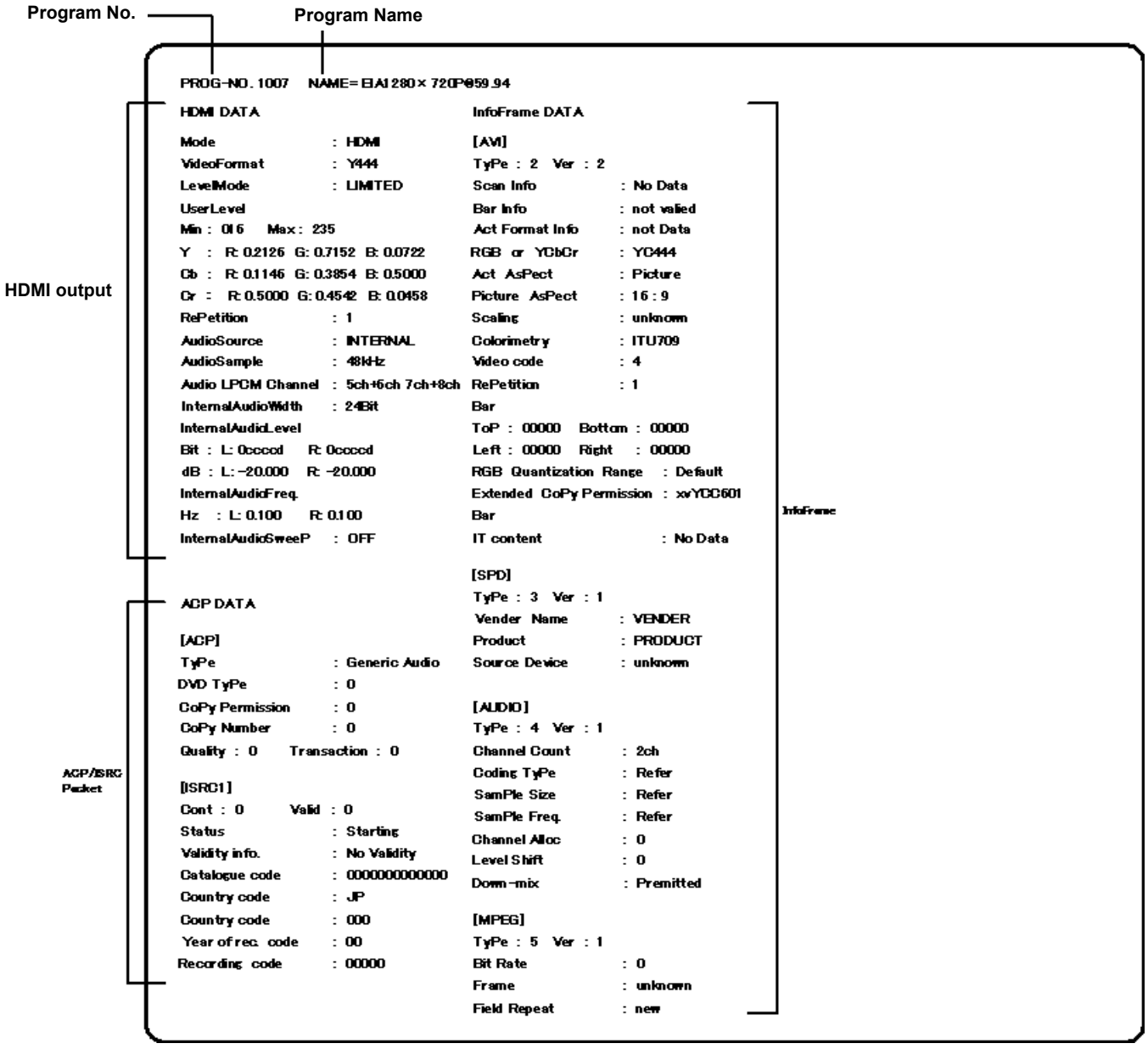
| | |
|---|---|
| (10) | This displays the Synchronization Verification Values (Ri, Ri'), which are used for checking the adequacy of links.<br>Ri is the value calculated for the transmitter; Ri' is the value calculated for the receiver. "OK" is displayed when the transmitter and receiver values match. (If OK resulted from a retry, "OK2" is displayed instead.) |

* This information is displayed only when the device connected to the VG-882-A is a repeater.

## 4.13.4 HDMI list

The HDMI list display can be selected by pressing the NAME/LIST pattern key while the output from the HDMI connector is connected to the display. Information of the signals that are input to the display from the HDMI connector is shown on the display.

Example: HDMI list when EIA 1280 × 720 and 59.94 Hz output signals are input to the display

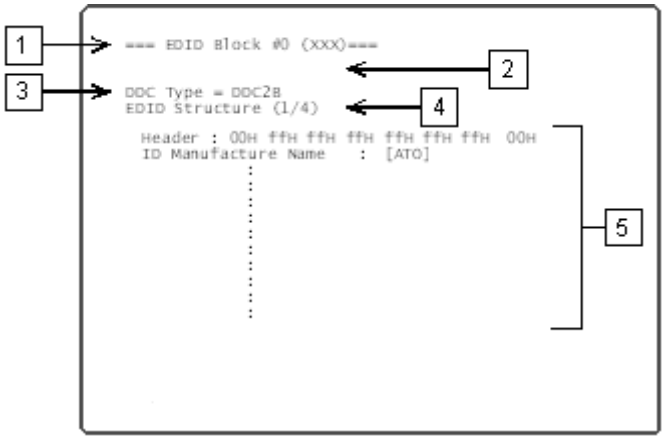


## 4.13.5 EDID list

The EDID of the connected display can be displayed on the screen.

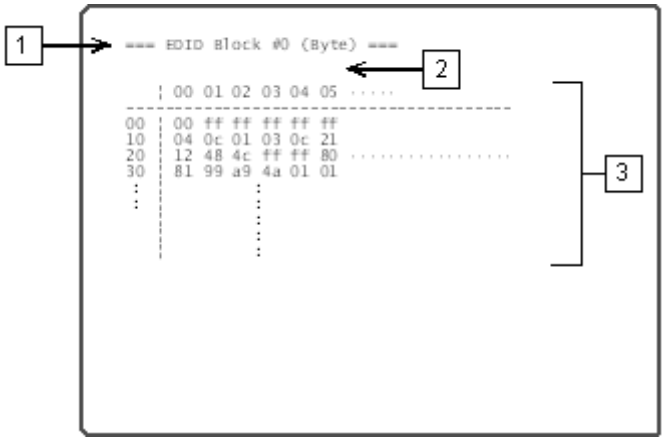
**a) EDID display method**

| | | |
|---|---|---|
| ① | NAME/LIST DETAIL → NAME/LIST DETAIL | |
| ② | **Displaying the EDID**<br>Select **EDID** using ○ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select 4/A ⇦ for the GUI display format or 5/B • for the HEX display format. | <br>The EDID is displayed as shown below. |
| ③ | **Selecting the pages**<br>Select 2 << (previous page) or 3 >> (next page) using ○ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the page using 2 ⇩ (previous page) or 3 ⇘ (next page). | When the display extends over several pages, it is divided up on the fluorescent display tube, and shown. (Switch from one page to another to display all the information.) |




**When the GUI display format is selected**

1) EDID block number
2) If an error occurs, the error is displayed.
3) DDC type
4) Displayed EDID blocks
5) EDID content




**When the HEX display format is selected**

1) EDID block number
2) If an error occurs, the error is displayed.
3) EDID content

CAUTION

The maximum number of read EDID blocks is eight (1 base block + 7 extension blocks) (when HDMI is selected).

**b) Port selection method**

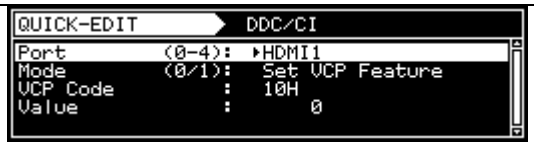
The EDID is displayed by only one video interface at a time, and it is necessary to set the video interface that is to display the EDID.

<table>
<tr><td>①</td><td>NAME/LIST DETAIL → NAME/LIST DETAIL<br><br>Establish the state in which EDID or EDID (HEX) is selected.</td><td>
</td></tr>
<tr><td>②</td><td>Select EDIT using ◯ or △ INC ▽ DEC, and then press SET.<br><br>Alternatively, select EDIT using 0/STATUS.</td><td>
</td></tr>
<tr><td>③</td><td>Selecting the port<br><br>Select the port using ◯ or △ INC ▽ DEC, and then press SET.</td><td colspan="2">Select the video interface for displaying the EDID.</td></tr>
<tr><td></td><td></td><td>0</td><td>HDMI1 HDMI 1 output is selected.</td></tr>
<tr><td></td><td></td><td>1</td><td>HDMI2 HDMI 2 output is selected.</td></tr>
<tr><td></td><td></td><td>2</td><td>HDMI3 HDMI 3 output is selected.</td></tr>
<tr><td></td><td></td><td>3</td><td>HDMI4 HDMI 4 output is selected.</td></tr>
<tr><td></td><td></td><td>4</td><td>VGA VGA output is selected.</td></tr>
</table>

## 4.13.6 DDC/CI list

Using the VGA and HDMI connectors, the DDC/CI commands can be sent and received, and shown on the display. Two modes are available for DDC/CI: the **Get** (**Get VCP Feature**) mode, in which the function data of the connected display is read, and the **Set** (**Set VCP Feature**) mode, in which user-defined data is set to the connected display.

**Setting DDC/CI**

| | | |
|---|---|---|
| ① | NAME/LIST DETAIL → NAME/LIST DETAIL | |
| ② | **Selecting DDC/CI**<br>Select **DDC/CI** using ◯ or △ INC ▽ DEC,<br>and then press SET. | |
| ③ | **Advanced setting: EDIT**<br>Select **EDIT** using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively, select **EDIT** using 0/STATUS. |  |

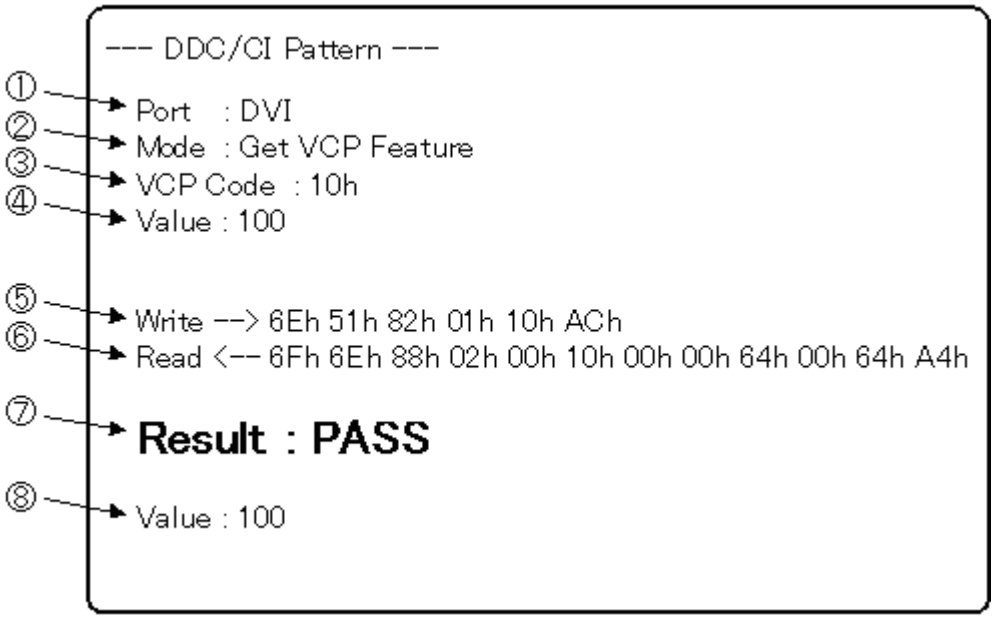
**Re-executing DDC/CI**

| | | |
|---|---|---|
| ① | NAME/LIST DETAIL → NAME/LIST DETAIL | |
| ② | Select **RE-EXECUTE** using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively, select **RE-EXECUTE** using 3. | |

**Table of DDC/CI setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Port(0-C)** | The port using DDC/CI is set here. | | |
| | | 0 | **HDMI1** | HDMI 1 output is selected. |
| | | 1 | **HDMI2** | HDMI 2 output is selected. |
| | | 2 | **HDMI3** | HDMI 3 output is selected. |
| | | 3 | **HDMI4** | HDMI 4 output is selected. |
| | | 4 | **VGA** | VGA output is selected. |
| (2) | **Mode(0/1)** | The operating mode is set here. | | |
| | | 0 | **Get VCP Feature** | The status of the connection destination is checked. |
| | | 1 | **Set VCP Feature** | The control commands are sent to the connection destination. |
| (3) | **VCP Code** | 00H-FFH | The VCP code is set. | |
| (4) | **Value** | 0-65535 | A value is set only when **Set VCP Feature** has been selected as the Mode setting. | |

**Display example of sent and received data using the DDC-CI setting**




| | | | |
|---|---|---|---|
| ① | Port | Output port from which DDC/CI is transferred | Items to be set by the generator |
| ② | Mode | DDC/CI transfer mode<br>Get VCP Feature: The status of the connection destination is received.<br>Set VCP Feature: The control commands are sent to the connection destination. | |
| ③ | VCP Code | Transfer command (set using the hexadecimal format) | |
| ④ | Value | (Displayed only when Set VCP Feature has been selected as the Mode setting.)<br>Parameter value to be transferred from the generator to the connection destination | |
| ⑤ | Write | Data sent from the generator | Items that display the receiving or sending results |
| ⑥ | Read | Data received by the generator | |
| ⑦ | Result | Transfer result<br>PASS: Data was transferred successfully.<br>NG: Transfer failed. | |
| ⑧ | Value | (Displayed only when Get VCP Feature has been selected as the Mode setting.)<br>Parameter value received by the VG-882-A from the connection destination | |

## 4.13.7 CEC list

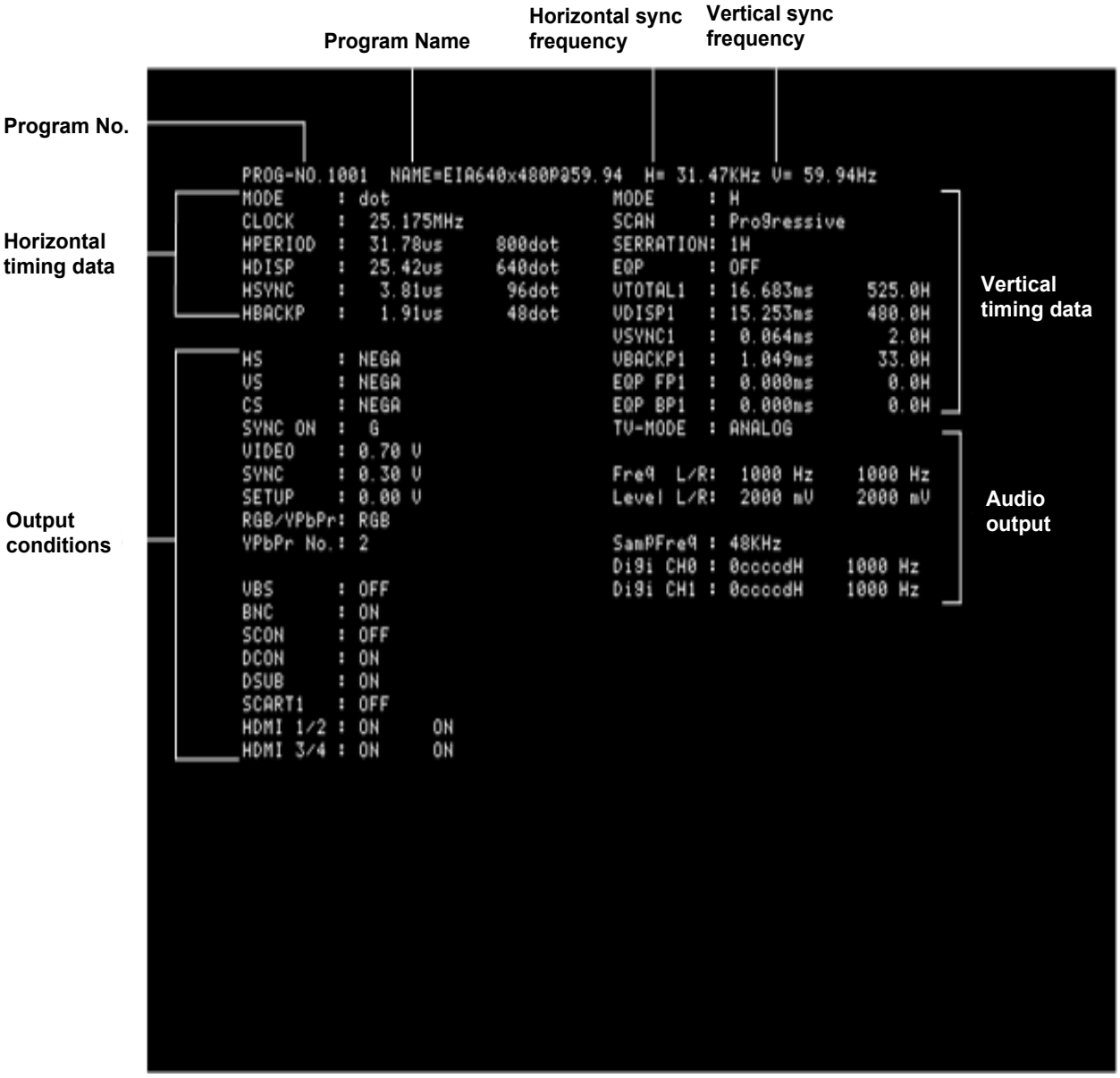
The CEC list display can be selected by pressing the NAME/LIST key while the generator is connected to the display.

For details of the executed and displayed list, refer to "**5.2.4 CEC**".

## 4.13.8 Timing data list

The timing data list display can be selected by pressing the NAME/LIST pattern key while the generator is connected to the display. The timing data, such as the parameters, of the signals that are input to the display from the output terminal is shown on the display.

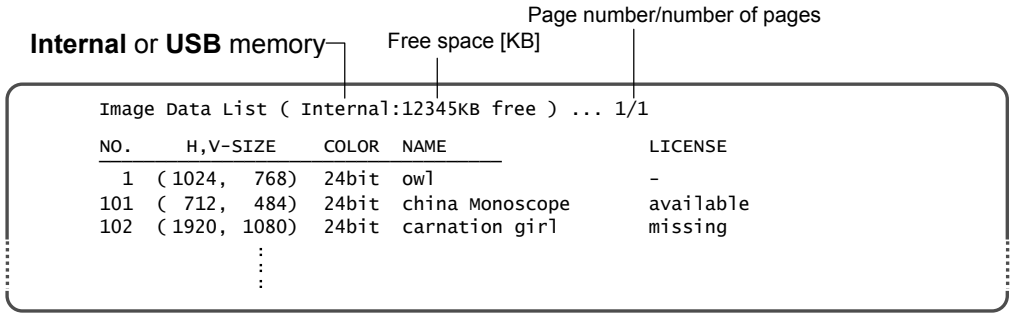
Example: Timing list when EIA 1280 × 720 and 59.94 Hz output signals are input to the display



## 4.13.9 Image pattern list

When the image list display is selected by pressing the NAME/LIST key while the generator is connected to the display, the information on the image patterns registered in the internal memory or the USB memory is shown on the display.

* When the USB memory device is connected, the information of the image patterns registered in the USB memory is displayed in a list; otherwise, the information of the image patterns in the internal memory is displayed in a list.


Page number/number of pages
**Internal** or **USB** memory
Free space [KB]
Image Data List ( Internal:12345KB free ) ... 1/1
NO. H,V-SIZE COLOR NAME LICENSE
1 ( 1024, 768) 24bit owl -
101 ( 712, 484) 24bit china Monoscope available
102 ( 1920, 1080) 24bit carnation girl missing

NO.: Image number

H,V-SIZE: Image size (width [dots], height [dots])

COLOR: Number of bits per dot

NAME: Image name

LICENSE: - No license required. (standard)

**available** The license has been registered, so the image can be used. (option)

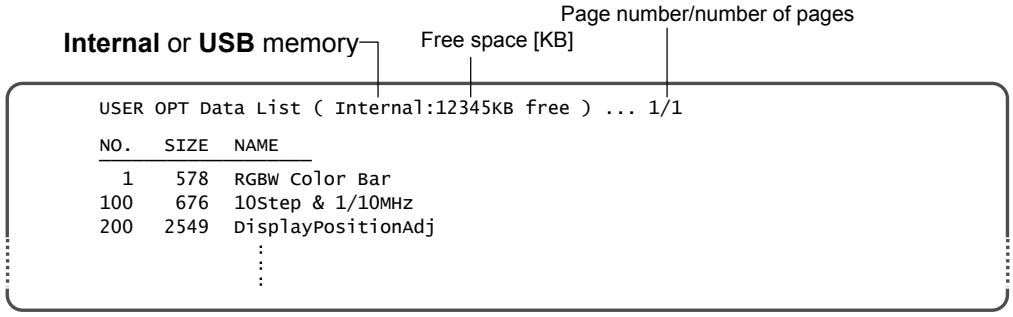
**missing** The license has not been registered, so the image cannot be used by this generator. (option)

If the total number of pages exceeds two, the pages can be selected using 2 << / 3 >>.

## 4.13.10 OPT-USER pattern list

When the OPT-USER pattern list display is selected by pressing the NAME/LIST key while the generator is connected to the display, the names and sizes of the user optional patterns registered in the internal memory or the USB memory are shown on the display.

* When the USB memory device is connected, the information registered in the USB memory is displayed in a list; otherwise, the information in the internal memory is displayed in a list.


Page number/number of pages
**Internal** or **USB** memory
Free space [KB]
USER OPT Data List ( Internal:12345KB free ) ... 1/1
NO. SIZE NAME
1 578 RGBW Color Bar
100 676 10Step & 1/10MHz
200 2549 DisplayPositionAdj

NO.: Pattern number

SIZE: Pattern size [bytes]

NAME: Pattern name

If the total number of pages exceeds two, the pages can be selected using 2 << / 3 >>.

## 4.13.11 ARC pattern list

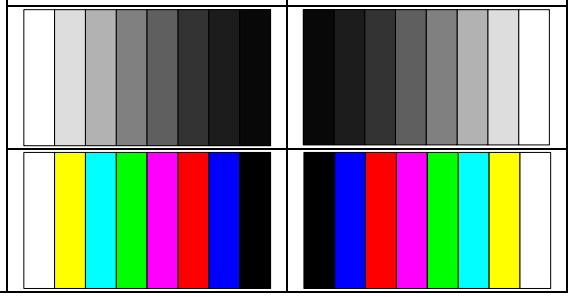
The ARC list display can be selected by pressing the NAME/LIST key while the generator is connected to the display.

For details of the executed and displayed list, refer to "**5.2.9 ARC（Audio Return Channel）**".

# 4.14 Video inversion

The video levels can be inverted.

| | | | |
|---|---|---|---|
| ① | INV : Not inverted<br>INV : Inverted<br>*** Cursor and Name/List are not inverted.** | Not inverted | Inverted |



# 5 Output Settings

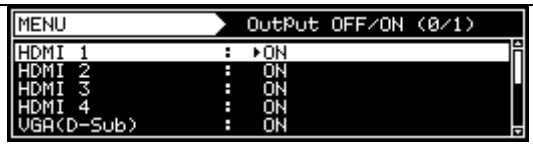
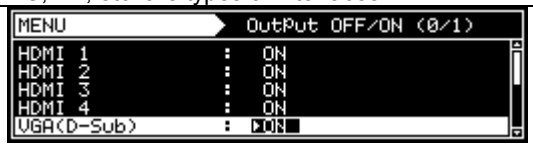
## 5.1 Common settings

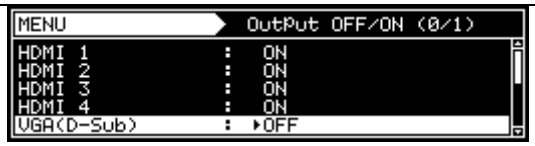
The following items are set as settings common to multiple video and audio output interfaces.

- Output interface on/off setting
- Sync signal on/off and polarity setting
- Aspect ratio setting
- Output gradation (bit length) setting
- Color difference coefficient setting
- Analog video level setting
- Digital video level setting
- Audio level setting

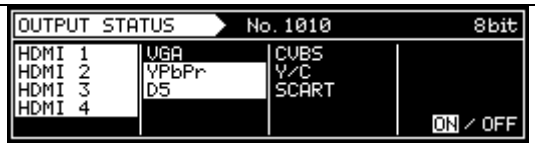
### 5.1.1 Setting the output interfaces to ON or OFF

"Output" (ON) or "no output" (OFF) can be selected for each video and audio output interface.
This is set to ON for the internal sample timing data unless this interferes with the ratings or specifications of the generator.
Example: In the case of EIA 1920 × 1080i@59.94, the CVBS, SCART and Y/C signals are set to OFF, but other output signals are set to ON.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Output (TIM)** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **All** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Output OFF/ON** using ◯ or △ INC ▽ DEC, and then press SET. |  <br>PC, TV, etc. are types of interfaces. |
| ⑤ | Select the interface whose settings are to be changed using ◯ or △ INC ▽ DEC, and then press SET. |  |

| | | |
|---|---|---|
| ⑥ | Select **ON/OFF** using ◯ or △ INC ▽ DEC, and then press SET. |  |

**How to check the interfaces whose signals are output**

| | | |
|---|---|---|
| ① | On the initial screen, select 0/STATUS while holding down SHIFT.<br>Select 0/STATUS again while holding down SHIFT to exit from the **OUTPUT STATUS** screen. |  |

## 5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities

In this section, the sync signals are set to ON or OFF and the sync signal polarities are set for each output terminal.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU ◯ ⇨, or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Output (TIM)** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **All** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Sync** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Select the items using ◯ or △ INC ▽ DEC, and then press SET.<br>Select the parameters using ◯ or △ INC ▽ DEC, and then press SET. | HS/VS and CV are set here.<br>* CV is a sync signal superimposed by analog video signals output from the RGB/YPbPr terminals, and it denotes “Video-on-Sync” in this manual.<br>For details, refer to “**SYNC setting parameters**”. |
| | MENU | Display returns to the initial screen. |

**Sync setting parameters**

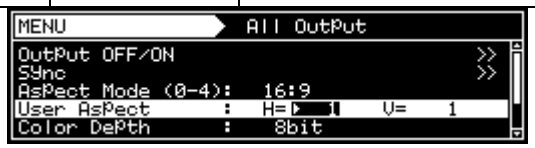
| | | | |
|---|---|---|---|
| **HS** | Used to set the HS terminal output. | | |
| | 0 | **Off** | No output |
| | 1 | **Nega** | The signal is output with a negative polarity. |
| | 2 | **Posi** | The signal is output with a positive polarity. |
| **VS** | Used to set the VS terminal output. | | |
| | 0 | **Off** | No output |
| | 1 | **Nega** | The signal is output with a negative polarity. |
| | 2 | **Posi** | The signal is output with a positive polarity. |
| **CV** | Used to set whether to superimpose Video-on-Sync onto analog component signals. | | |
| | 0 | **Off** | Video-on-Sync is not superimposed. |
| | 1 | **R** | Video-on-Sync is superimposed onto the R signal. |
| | 2 | **G** | Video-on-Sync is superimposed onto the G signal. |
| | 3 | **RG** | Video-on-Sync is superimposed onto the RG signal. |
| | 4 | **B** | Video-on-Sync is superimposed onto the B signal. |
| | 5 | **RB** | Video-on-Sync is superimposed onto the RB signal. |
| | 6 | **GB** | Video-on-Sync is superimposed onto the GB signal. |
| | 7 | **RGB** | Video-on-Sync is superimposed onto the RGB signal. |

CAUTION

- If the overlapping sync is a tri-level sync (HDTV timing) signals, its polarity cannot be changed.

## 5.1.3 Setting the aspect ratio

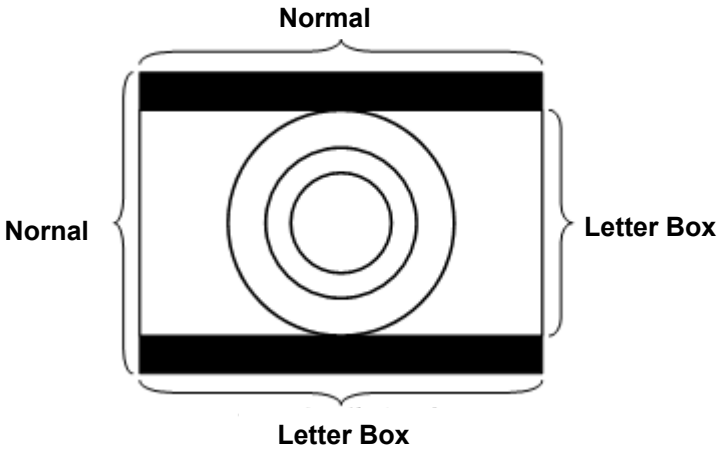
The aspect ratio of video signals is set here.

<table>
<tr><td>①</td><td>Select Program Edit using MENU<br>or △ INC ▽ DEC, and then press SET.</td><td>
</td></tr>
<tr><td>②</td><td>Select Output (TIM) using or △ INC<br>▽ DEC, and then press SET.</td><td>
</td></tr>
<tr><td>③</td><td>Select All using or △ INC ▽ DEC, and<br>then press SET.</td><td>
</td></tr>
<tr><td>④</td><td>Select Aspect Mode using or △ INC<br>▽ DEC, and then press SET.</td><td>
</td></tr>
<tr><td>⑤</td><td>Inputting the parameters<br>Select the parameters using or △ INC<br>▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F<br>(number keys), and then press SET.</td><td>Set the aspect ratio.<br>
<table>
<tr><td>0</td><td>4:3</td><td>The aspect ratio is set to 4:3.</td></tr>
<tr><td>1</td><td>16:9</td><td>The aspect ratio is set to 16:9.</td></tr>
<tr><td>2</td><td>Resolution</td><td>The aspect ratio is set to same ratio as that of the screen resolution.</td></tr>
<tr><td>3</td><td>User</td><td>The user sets the aspect ratio.</td></tr>
</table></td></tr>
<tr><td>⑥</td><td>If User was set in step ⑤, the user can set the aspect ratio.<br><br>Select UserAspect using or △ INC ▽ DEC,<br>and then press SET.</td><td> 
</td></tr>
<tr><td>⑦</td><td>Inputting the parameters<br><br>Select the parameters using or △ INC<br>▽ DEC, and then press SET.</td><td>Set the aspect ratio.<br>
<table>
<tr><td>H</td><td>The aspect ratio is set in the horizontal direction.<br>Setting range: 0 to 255</td></tr>
<tr><td>V</td><td>The aspect ratio is set in the vertical direction.<br>Setting range: 0 to 255</td></tr>
</table></td></tr>
</table>

| | | |
|---|---|---|
| | Select the numerical value using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | |

*** Although images are normally output with the 4:3 aspect ratio, the images that are output when 4:3 Letter Box has been selected have a 16:9 aspect ratio. Therefore, the top and bottom portions of the images are filled in black and output.**

**When 4:3 Letter Box has been selected as the aspect ratio, the images output will appear as shown below.**

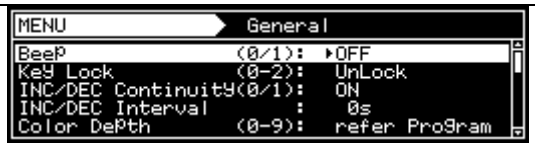


## 5.1.4 Setting the output gradation (bit length)

The output gradation (bit length) of the program for execution can be set.
This can either be set either separately for each program or it can be fixed irrespective of the programs.

a) Specify a fixed bit length
b) Set the bit length for each program

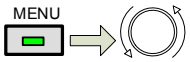
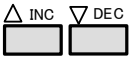
**a) Specifying a fixed bit length**

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC, and then press SET. |  |
| ③ | Select **Color Depth** using or △ INC ▽ DEC, and then press SET. | |
| ④ | **Inputting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | Select the bit length. |

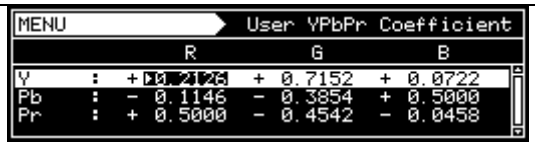
| | | |
|---|---|---|
| 0 | Refer to Program | The setting matches the program setting. |
| 1 | 8Bit | The patterns are drawn with 8 bits. |
| 2 | 9Bit | The patterns are drawn with 9 bits. |
| 3 | 10Bit | The patterns are drawn with 10 bits. |
| 4 | 11Bit | The patterns are drawn with 11 bits. |
| 5 | 12Bit | The patterns are drawn with 12 bits. |

**b) Setting the bit length for each program**

This setting takes effect when **Refer to Program** has been selected for the setting in ③ of "**a) Specifying a fixed bit length**" above.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC  , and then press SET . | |
| ② | Select **Output (TIM)** using or △ INC ▽ DEC , and then press SET . | |
| ③ | Select **All** using or △ INC ▽ DEC , and then press SET . | |
| ④ | Select **Color Depth** using or △ INC ▽ DEC , and then press SET . | |
| ⑤ | Select the bit length using or △ INC ▽ DEC , and then press SET . | |

## 5.1.6 Setting the color difference coefficient

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Output (TIM)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **All** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select the color difference coefficient when **YPbPr** is selected.<br>Select **YPbPr Select** using or △ INC ▽ DEC, and then press SET.<br>Select the parameters using or △ INC ▽ DEC, and then press SET. | Select the color difference coefficient.<br>0 **SMPTE274M /296M /RP-177** — The color difference coefficient for one of the standards on the left is set.<br>1 **SMPTE-240M**<br>2 **SMPTE-293M**<br>3 **SMPTE-125M**<br>4 **User** — The user sets the coefficient. |
| ⑤ | If **User** was set in step ④, the user can set the coefficient.<br>Select **UserYPbPr Coefficient** using or △ INC ▽ DEC, and then press SET. |  |
| ⑥ | Set the color matrix coefficients.<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br>Select the numerical value using or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F, and then press SET. | ◎ Caution for setting the coefficients<br>• The Y line must total 1.0000.<br>• The sum of the coefficient for Pb and Pr respectively must be 0. |
| | MENU | Display returns to the initial screen. |

## 5.1.7 Setting the analog video level

The video level of the analog component signals can be changed in real-time.
The video signal gray scale remains unchanged, and only the level is changed.
The analog video level can be changed either by using the LEVEL key screen or Program Edit.

**Using the LEVEL key screen**

| | | |
|---|---|---|
| ① | LEVEL 3<br>**Setting the analog video level** | |
| ② | INC DEC or<br>**Changing the analog level**<br><br>**To increase the setting speed**<br>Use SHIFT and , or use SHIFT and INC DEC.<br>**Changing the analog level (increase)** | Setting range:<br>When Video-on-Sync is not superimposed<br>**0.05V – 1.2V**<br><br>When Video-on-Sync is superimposed<br>**0.30V – 1.2V**<br><br>For the Video-On-Sync settings, refer to "5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities". |
| ③ | LEVEL or ESC | Display returns to the initial screen. |

**Using Program Edit**

For details of the setting procedure, refer to "**5.3.1 Common component signal settings**".

CAUTION

This setting only takes effect when outputting analog component signals (VGA, YPbPr).

## 5.1.8 Setting the digital video level

The digital level of the video signals can be changed in real-time.
For details of the setting the gradation, refer to "**5.1.4 Setting the output gradation (bit length)**".

The digital video level can be changed either by using the LEVEL key screen or Program Edit.

Using the LEVEL key screen

| | | |
|---|---|---|
| ① | LEVEL → **Setting the digital video level** | |
| ② | or INC DEC<br>→ **Changing the digital level**<br><br>**To increase the setting speed**<br>Select using SHIFT and , or use SHIFT and INC DEC.<br>→ **Changing the digital level (increase)**<br>The number of steps when increasing can be set with "8.1.11 Digital video level step setting". | Bit length (gradation) / Setting range<br>8BIT: **0 - 255**<br>9BIT: **0 - 511**<br>10BIT: **0 - 1023**<br>11BIT: **0 - 2047**<br>12BIT: **0 - 4095** |
| ③ | Select using LEVEL or ESC. | Display returns to the initial screen. |

Using Program Edit

| | | |
|---|---|---|
| ① | Select MENU, and then use or INC DEC to:<br>select **Program Edit**, and then press SET.<br>select **Output (TIM)**, and then press SET.<br>select **HDMI**, and then press SET.<br>select **Level**, and then press SET. | |

| | | |
|---|---|---|
| ② | Select the items using ◯ or △ INC ▽ DEC, and then press SET.<br>**Inputting the parameters**<br>Select the parameters using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | |

## 5.1.9 Setting the audio level

The audio output level for common items can be changed in real-time. The levels set separately for analog audio and HDMI audio are applied with the levels added here.

* For details on analog audio and HDMI, refer to "**5.6.2 Analog audio**" and "**5.7.1 Digital audio**" respectively.

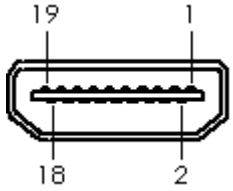
| | | |
|---|---|---|
| ① | LEVEL → 3 → 3 (PAGE: 3/3) | |
| ② | Change the audio level using or INC DEC.<br>**To increase the setting speed**<br>Select using SHIFT and or SHIFT and INC DEC. | |
| ③ | Select using LEVEL or ESC. | Display returns to the initial screen. |

CAUTION

- The value set here is **not saved** to the program data.

## 5.2 HDMI Output

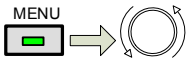
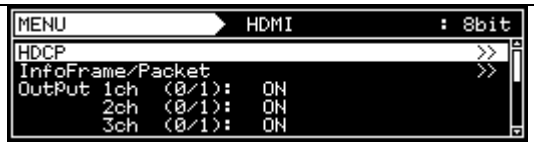
### 5.2.1 Connectors and pin assignments




| Pin No. | Signal |
|---|---|
| 1 | TMDS DATA2＋ |
| 2 | TMDS DATA2 SHIELD |
| 3 | TMDS DATA2－ |
| 4 | TMDS DATA1＋ |
| 5 | TMDS DATA1 SHIELD |
| 6 | TMDS DATA1－ |
| 7 | TMDS DATA0＋ |
| 8 | TMDS DATA0 SHIELD |
| 9 | TMDS DATA0－ |
| 10 | TMDS CLK＋ |
| 11 | TMDS CLK SHIELD |
| 12 | TMDS CLK－ |
| 13 | CEC |
| 14 | UTILITY |
| 15 | DDC CLK |
| 16 | DDC DATA |
| 17 | GROUND（for +5V） |
| 18 | +5V (DDC power supply*1) |
| 19 | HOT PLUG DETECT |
| Shell | FG |

*1 Restrictions apply to the supply current of the DDC power supply. Refer to "**11.1 Maximum** Currency for DDC ".

## 5.2.2 HDMI setting procedure

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or INC DEC, and then press SET. | |
| ② | Select **Output (TIM)** using or INC DEC, and then press SET. | |
| ③ | Select **HDMI** using or INC DEC, and then press SET. |  |
| ④ | Select the items using or INC DEC, and then press SET.<br><br>**Inputting the parameters**<br>Select the parameters using or INC DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details on the parameters, refer to "**HDMI output setting parameters**" on the next page. |

**HDMI output setting parameters**

| | | | | |
|---|---|---|---|---|
| (1) | **Output 1ch (0/1)**<br>**Output 2ch (0/1)**<br>**Output 3ch (0/1)**<br>**Output 4ch (0/1)** | Set on or off for each channel here.<br>The same settings as the ones described in "**5.1.1 Setting the output interfaces to ON or OFF**" can also be used here. | | |
| | | 0 | **OFF** | No output |
| | | 1 | **ON** | Signal output |
| (2) | **Level Mode(0/1)** | Set the range of the video level output from HDMI. It is possible to output video, switching between HDMI standard Limited Range and the normal Full Range.<br>*** For details of the level mode, refer to the table on the next page.** | | |
| | | 0 | **Full** | This outputs video with Full Range. |
| | | 1 | **Limited** | This outputs video with Limited Range. |
| (3) | **Level** | The output level is set here. The setting range varies depending on the output gradation setting.<br>This level is linked to the common digital video level.<br>(Refer to "**5.1.8 Setting the digital video level**".)<br>*** For the setting range, refer to the table on the next page.** | | |
| (4) | **HDMI or DVI(0-2)** | An HDMI connection can be made to DVI by cable conversion.<br>Set the operations at this time here. | | |
| | | 0 | **HDMI** | The full functions of HDMI can be used. |
| | | 1 | **DVI** | This setting differs from HDMI in the following ways.<br>InfoFrame and Packet are not sent.<br>Audio is not supported.<br>Up to 8 bits are supported. Deep Color is not supported. |
| | | 2 | **Auto** | EDID of the connected monitor is checked, and the DVI and HDMI modes are set. |
| (5) | **Video Format (0-2)** | The color space of the images output from HDMI is set here.<br>*** The AVI InfoFrame setting must also be configured at the same time.** | | |
| | | 0 | **RGB** | The images are output using RGB signals.<br>* The color format of "**5.3.1 Common component signal settings**" must be set to RGB.<br>(Product specifications) |
| | | 1 | **YCbCr4:4:4** | The images are output using YCbCr4:4:4 signals. |
| | | 2 | **YCbCr4:2:2** | The images are output using YCbCr4:2:2 signals. |
| (6) | **Width(0-3)** | The bit length of the images output from HDMI is set here. A setting independent of the bit length for pattern drawing can be selected or the same bit length can be selected automatically. * The portion by which the bit length for pattern drawing exceeds the bit length set here is discarded. The deficient portion is filled with zeros.<br>Refer to "**5.1.4 Setting the output gradation (bit length)**". | | |
| | | 0 | **Auto** | **8, 10 or 12 bits** are selected here automatically depending on the bit length for pattern drawing. |

| | | | | |
|---|---|---|---|---|
| | | 1 | **8bit** | 8-bit output |
| | | 2 | **10bit** | 10-bit output |
| | | 3 | **12bit** | 12-bit output |
| (7) | **Audio Output(0/1)** | 0 | **OFF** | Audio is not output. |
| | | 1 | **ON** | Audio (sine wave via L-PCM) is output. |
| (8) | **Audio N (0/1)** | The audio N parameter is set here.<br>* This setting is optional. This setting is only valid when the CTS license is registered. This is set to Auto when not registered. | | |
| | | 0 | **Auto** | The appropriate value is set here. |
| | | 1 | **Manual**<br>128xfs/ **A** | Set the N value that is calculated by<br>N = 128 × sampling frequency / **A**.<br><br>**A** setting range: 300 to 1500 |
| (9) | **InfoFrame/Packet** | ・When sending this setting automatically together with the color space and other settings, refer to "**5.2.3 Info Frame / Packet**".<br>・When sending this setting with specified data, refer to "**5.2.3 Info Frame / Packet**". | | |

**Video range of Full Range**

| | 8BIT | 10BIT | 12BIT |
|---|---|---|---|
| R/G/B/Y/Cb/Cr | 0-255 | 0-1023 | 0-4095 |

**Video range of Limited Range**

| | 8BIT | 10BIT | 12BIT |
|---|---|---|---|
| R/G/B/Y | 16-235 | 64-940 | 256-3760 |
| Cb/Cr | 16-240 | 64-960 | 256-3840 |

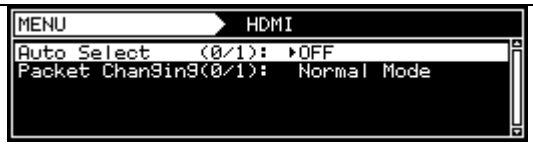
## 5.2.3 Info Frame / Packet

InfoFrame can send the values that are optimal for the video and audio output conditions. In addition, it is possible to send InfoFrame using values that differ from the output conditions to verify operations when the correct InfoFrame is not sent.

Use one of the following operations to send InfoFrame/Packet:

a) Send the optimal values automatically
b) Set separate InfoFrame values and send them.

### a) Sending the optimal values automatically

<table>
<tr><td>①</td><td>Select Configuration using MENU or △ INC ▽ DEC, and then press SET.</td><td>
</td></tr>
<tr><td>②</td><td>Select HDMI using or △ INC ▽ DEC, and then press SET.</td><td> 
</td></tr>
<tr><td>③</td><td>Select Auto Select using or △ INC ▽ DEC, and then press SET and 1.</td><td>The values are selected and sent automatically.<br>

<table>
<tr><td>0</td><td>OFF</td><td>The optimal value is not sent.</td></tr>
<tr><td>1</td><td>ON</td><td>The optimal value is sent.</td></tr>
</table></td></tr>
</table>

**List of automatically selected items**

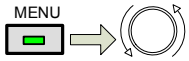
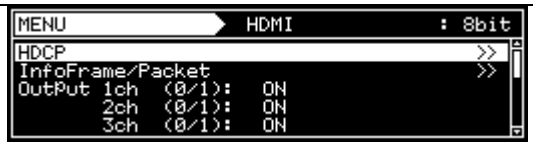
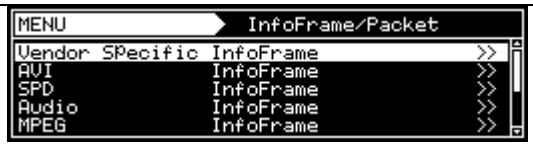
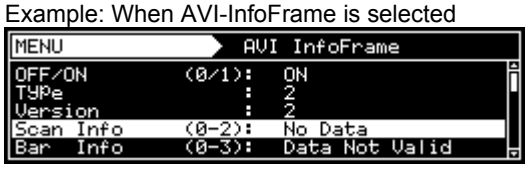
・If program data has been saved when Auto Select is set to ON, the values that were set by automatic selection will be saved.

・A dash ("-") denotes that the value of the original setting is used.

<table>
<tr><th>Item</th><th colspan="4">Setting/reference section</th></tr>
<tr><td>AVI InfoFrame</td><td colspan="4"></td></tr>
<tr><td></td><td colspan="3">AFD pattern is displayed. (* Refer to "4.7 Aspect ratio patterns".)</td><td>Other setting</td></tr>
<tr><td>Active Format Information</td><td colspan="3">Valid</td><td>—</td></tr>
<tr><td>Active Format Aspect</td><td colspan="3">The setting depends on the AFD>**Type** setting.</td><td>—</td></tr>
<tr><td>Top Bar</td><td colspan="3" rowspan="4">Value calculated from AFD and Timing settings</td><td rowspan="4">—</td></tr>
<tr><td>Bottom Bar</td></tr>
<tr><td>Left Bar</td></tr>
<tr><td>Right Bar</td></tr>
<tr><td>RGB or YCbCr</td><td colspan="4">The setting depends on the HDMI>**Video Format** setting.</td></tr>
<tr><td>Picture Aspect</td><td colspan="4">The setting depends on the HDMI>AVI InfoFrame>**Video Code** setting. (Conforms with EIA/CEA-861.)</td></tr>
<tr><td>Repetition</td><td colspan="4">The setting depends on the H-Timing>**Repetition** setting.</td></tr>
<tr><td>Audio InfoFrame</td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4">The setting depends on the Digital Audio>**Source** setting.</td></tr>
<tr><td></td><td>Ext.ANALOG to L-PCM<br>Int.L-PCM<br><br>Ext.I2S L-PCM (optional)</td><td>Ext.ANALOG to DSD</td><td>Int.DSD (optional)</td><td>Other setting</td></tr>
<tr><td>Sampling Frequency</td><td>—</td><td>44.1kHz</td><td>Depends on the DSD File information.</td><td>—</td></tr>
<tr><td>Channel Count</td><td colspan="3">The setting depends on the number of channels set to ON by Digital Audio>**Output Channel**.<br><table><tr><td>0</td><td>1</td><td>2～8</td></tr><tr><td>Refer StreamHeader</td><td>2ch</td><td>2～8ch</td></tr></table></td><td>—</td></tr>
<tr><td>ACP Packet</td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4">The setting depends on the ACP Packet>**ACP_Type** setting.</td></tr>
<tr><td></td><td colspan="3">DVD-Audio</td><td>Other setting</td></tr>
<tr><td>DVD-Audio_Type</td><td colspan="3">1</td><td>0</td></tr>
<tr><td>Copy_Permission</td><td colspan="3">—</td><td>0（Copy Freely）</td></tr>
<tr><td>Copy_Number</td><td colspan="3">—</td><td>0（1 copies）</td></tr>
<tr><td>Quality</td><td colspan="3">—</td><td>0</td></tr>
<tr><td>Transaction</td><td colspan="3">—</td><td>0（Not Present）</td></tr>
<tr><td>ISRC Packet</td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4">The setting depends on the ACP Packet>**ACP_Type** setting.</td></tr>
<tr><td></td><td colspan="3">DVD-Audio</td><td>Other setting</td></tr>
<tr><td>OFF/ON ISRC1</td><td colspan="3">—</td><td>OFF</td></tr>
<tr><td>ISRC2</td><td colspan="3">The setting depends on the ISRC Packet>**ISRC_Cont** setting.<br><table><tr><td>0</td><td>1</td></tr><tr><td>OFF</td><td>—</td></tr></table></td><td>OFF</td></tr>
</table>

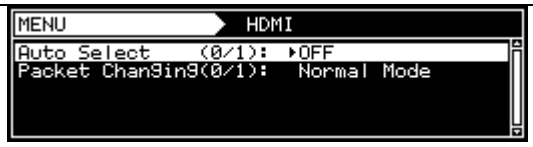
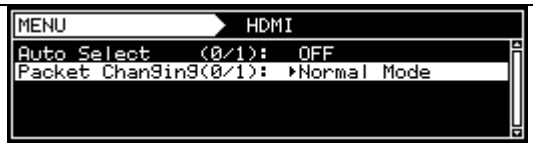
**b) Setting separate InfoFrame values and sending them**

* This setting takes effect when **Off** has been selected for Auto Select in "**a) Sending the optimal values automatically**" above.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Output (TIM)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **HDMI** using or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select the InfoFrame and Packet to be set.<br>Select **InfoFrame/Packet** using or △ INC ▽ DEC, and then press SET. |  |
| ⑤ | **Inputting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F, (number keys), and then press SET. | Example: When AVI-InfoFrame is selected<br>  <br>For details on InfoFrame and Packet, refer to "**InfoFrame/Packet setting parameters**" on the next page. |

**Setting the HDMI output when making changes to InfoFrame/Packet**

When making changes to InfoFrame/Packet, users can select either to turn off the synchronization of the HDMI output and configure the settings or change only the packets without turning off the synchronization.

<table>
<tr><td>①</td><td>Select Configuration using MENU or INC DEC, and then press SET.</td><td>
</td></tr>
<tr><td>②</td><td>Select HDMI using or INC DEC, and then press SET.</td><td> 
</td></tr>
<tr><td>③</td><td>Select Packet Changing using or INC DEC, and then press SET.</td><td> 

<table>
<tr><td>0</td><td>Normal Mode</td><td>The HDMI output synchronization is turned off, and the InfoFrame/Packet changes are made.</td></tr>
<tr><td>1</td><td>Game Mode</td><td>Changes are made to InfoFrame/Packet only (the synchronization is not turned off).</td></tr>
</table></td></tr>
</table>

**InfoFrame/Packet setting parameters**

The following are the nine InfoFrame/Packet setting parameters.

- Vendor Specific
- AVI InfoFrame
- SPD InfoFrame
- Audio InfoFrame
- MPEG InfoFrame
- NTSC VBI
- ACP Packet
- ISRC Packet
- Gamut Metadata Packet

CAUTION

Due to restrictions of built-in devices, only **up to four packets** may be sent, not including **AVI InfoFrame or Audio InfoFrame**. In addition, the ON/OFF settings of packets are checked in the following order.

1. ACP Packet
2. ISRC1 Packet
3. ISRC2 Packet
4. Gamut Meta Data Packet
5. SPD InfoFrame
6. MPEG InfoFrame
7. Vendor Specific InfoFrame
8. NTSC VBI InfoFrame

In the following example, Vendor Specific InfoFrame and NTSC VBI InfoFrame are disabled.

| | | | |
|---|---|---|---|
| ACP Packet | : ON | SPD InfoFrame | : ON |
| ISRC1 Packet | : OFF | MPEG InfoFrame | : ON |
| ISRC2 Packet | : OFF | Vendro Specific InfoFrame | : ON |
| Gamut Metadata Packet | : ON | NTSC VBI InfoFrame | : ON |

## ■ Vendor Specific InfoFrame

The vendor specific information is stored in Vendor Specific InfoFrame, and sent.

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON** | This setting determines whether Vendor Specific InfoFrame is to be sent. | | |
| | | 0 | **OFF** | The Vendor Specific InfoFrame is not sent. |
| | | 1 | **ON** | The Vendor Specific InfoFrame is sent. |
| The following are the Vendor Specific InfoFrame settings. * These settings are not related to the video and audio output settings. | | | | |
| (2) | **Type** | This is the Vendor Specific InfoFrame type setting. | | |
| | | **1** | | * "Type" is displayed only. It cannot be changed. |
| (3) | **Version** | This is the Vendor Specific InfoFrame version setting. | | |
| | | **1** | | * "Version" is displayed only. It cannot be changed. |
| (4) | **IEEE RegID Sel** | This selects the format setting for the IEEE Registration ID and the items after it. | | |
| | | 0 | **Other** | Any IEEE Registration ID can be selected.<br>The Payload is set after the IEEE Registration ID. |
| | | 1 | **HDMI** | The IEEE Registration ID is set to 000C03.<br>After the IEEE Registration ID, the setting is configured using the format that supports HDMI 1.4. |
| 1. IEEE RegID Sel: Other | | | | |
| 1-(1) | **IEEE Regist. ID** | This is the IEEE Registration ID setting. | | |
| | | **000000 - FFFFFF** | | |
| 1-(2) | **Payload Length** | This is the Payload length setting. | | |
| | | **0 – 24** | | |
| 1-(3) | **Payload 1-24** | This is the Payload data setting. | | |
| | | **00 – FF** | | |
| 2. IEEE RegID Sel: HDMI | | | | |
| 2-(1) | **IEEE Regist. ID** | This indicates the IEEE Registration ID. (It cannot be changed.) | | |
| | | **000C03** | | |
| 2-(2) | **Video Format** | This is the HDMI Video Format setting. | | |
| | | 0 | **None** | No additional HDMI video format is presented in this packet. |
| | | 1 | **Ext. Resolution** | Extended resolution format present. |
| | | 2 | **3D** (optional) | 3D format indication present.<br>* "3D" is optional. The Vendor Specific InfoFrame information is not sent unless the license has been registered. For details, contact your dealer or the Astrodesign Sales Department. |
| 2-1. Video Format: Ext. Resolution | | | | |
| 2-1-(1) | **HDMI VIC** | This is the HDMI VIC setting. | | |
| | | 0 | **4Kx2K 29.97/30Hz** | |
| | | 1 | **4Kx2K 25Hz** | |
| | | 2 | **4Kx2K 23.98/24Hz** | |
| | | 3 | **4Kx2K 24Hz(SMPTE)** | |

| 2-2. Video Format：3D (optional) | | | | |
|---|---|---|---|---|
| 2-2-(1) | **3D Structure** | This is the 3D Structure setting. | | |
| | | 0 | **Frame Packing** | |
| | | 1 | **Field Alternative ∗1** | |
| | | 2 | **Line Alternative** | |
| | | 3 | **Side-by-Side(Full)** | |
| | | 4 | **L + depth** | |
| | | 5 | **L + d + G + G-d** ( L + depth + graphics + graphics - depth ) | |
| | | 6 | **Side-by-Side(Half)** | |
| | | 7 | **Top & Bottom** | |
| 2-2-(2) | **3D Ext Data** | This is the 3D Ext Data setting. | | |
| | | 0 ∗2 | **Horizontal O/L,O/R** | Horizontal sub-sampling<br>Odd/Left picture, Odd/Right picture |
| | | 1 ∗2 | **Horizontal O/L,E/R** | Horizontal sub-sampling<br>Odd/Left picture, Even/Right picture |
| | | 2 ∗2 | **Horizontal E/L,O/R** | Horizontal sub-sampling<br>Even/Left picture, Odd/Right picture |
| | | 3 ∗2 | **Horizontal E/L,E/R** | Horizontal sub-sampling<br>Even/Left picture, Even/Right picture |
| | | 4 | **Quincunx O/L,O/R** | Quincunx matrix<br>Odd/Left picture, Odd/Right picture |
| | | 5 | **Quincunx O/L,E/R** | Quincunx matrix<br>Odd/Left picture, Even/Right picture |
| | | 6 | **Quincunx E/L,O/R** | Quincunx matrix<br>Even/Left picture, Odd/Right picture |
| | | 7 | **Quincunx E/L,E/R** | Quincunx matrix<br>Even/Left picture, Even/Right picture |
| 2-2-(3) | **3DMeta Present** | This is the 3D Meta present (whether or not the following 3D metadata is present) setting. | | |
| | | 0 | **0 (Not Present)** | 3D metadata not present |
| | | 1 | **1** | 3D metadata present |
| 2-2-(4) | **Metadata Type** | This indicates the 3D Metadata type. (It cannot be changed.) | | |
| | | **0** | | |
| 2-2-(5) | **Metadata Length** | This is the 3D Metadata Length setting. | | |
| | | **0** - **19** | | |
| 2-2-(6) | **Metadata 1-19** | This is the 3D Metadata data setting. | | |
| | | **00** – **FF** | | |

CAUTION

**∗1**

The output signals differ from the written standards. Currently, during the Vblank3 period of Field Alternative the DE signal becomes HIGH.

CAUTION

**∗2**

**The values 0 to 3 of 3D Ext Data are all set to "Horizontal sub-sampling" for HDMI version 1.4a.**

**The previous notation is used for the VG to differentiate the drawing methods and ensure compatibility.**

## ■ AVI InfoFrame

“AVI InfoFrame” stands for Auxiliary Video Information InfoFrame. The information of the transmission images, including the color space and aspect ratio, is stored in it, and sent.

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON** | This setting determines whether the AVI InfoFrame is to be sent. | | |
| | | 0 | **OFF** | The AVI InfoFrame is not sent. |
| | | 1 | **ON** | The AVI InfoFrame is sent. |
| The following are the AVI InfoFrame settings. * These settings are not related to the video and audio output settings. | | | | |
| (2) | **Type** | This is the AVI InfoFrame type setting. | | |
| | | 2 | * “Type” is displayed only. It cannot be changed. | |
| (3) | **Version** | This is the AVI InfoFrame version setting. | | |
| | | 1 | **Version 1** | |
| | | 2 | **Version 2** | |
| (4) | **Scan Info** | This sets the Scan Information.<br>(It sets whether scan processing is required for the transmitted images.) | | |
| | | 0 | **No Data** | No Data |
| | | 1 | **Overscanned** | Composed for an overscanned display. |
| | | 2 | **Underscanned** | Composed for an underscanned display. |
| (5) | **Bar Info** | This sets the Bar Info (valid or invalid for the Bar Information described later). | | |
| | | 0 | **Data Not Valid** | Bar Data not valid |
| | | 1 | **Vertical Valid** | Vert.Bar info valid |
| | | 2 | **Horizontal Valid** | Horiz.Bar info Valid |
| | | 3 | **Vert. & Horiz. Valid** | Vert. And Horiz. Bar Info valid |
| (6) | **ActiveF Info** | This sets the Active Format Information Present (valid or invalid for the Active Format Aspect Ratio described later). | | |
| | | 0 | **No Data** | No Data |
| | | 1 | **Valid** | Active Format Information Valid |
| (7) | **RGB or YCbCr** | This is the RGB or YCbCr (color space of transmitted images) setting. | | |
| | | 0 | **RGB** | |
| | | 1 | **YCbCr 4:2:2** | |
| | | 2 | **YCbCr 4:4:4** | |
| (8) | **AvtiveF Aspect** | This is the Active Format Aspect Ratio (aspect ratio of the video parts (excluding Bar of letter box, etc.)) setting. | | |
| | | 0 | **Same Picture** | |
| | | 1 | **4:3(center)** | |
| | | 2 | **16:9(center)** | |
| | | 3 | **14:9(center)** | |
| | | 4 | **Box 16:9(top)** | |
| | | 5 | **Box 14:9(top)** | |
| | | 6 | **Box > 16:9(center)** | |
| | | 7 | **4:3(14:9 center)** | |
| | | 8 | **16:9(14:9 center)** | |
| | | 9 | **16:9(4:3 center)** | |

| | | | | |
|---|---|---|---|---|
| (9) | **Picture Aspect** | This is the Picture Aspect Ratio (aspect ratio of the video parts including Bar of letter box, etc.) setting. | | |
| | | 0 | **No Data** | No Data |
| | | 1 | **4:3** | 4:3 |
| | | 2 | **16:9** | 16:9 |
| (10) | **Scaling** | This is the Non-Uniform Picture Scaling (direction in which transmitted images have been scaled) setting. | | |
| | | 0 | **No Known** | No Known non-uniform Scaling |
| | | 1 | **Horizontal** | Picture has been scaled horizontally |
| | | 2 | **Vertical** | Picture has been scaled vertically |
| | | 3 | **Horiz. & Vert.** | Picture has been scaled horizontally and vertically |
| (11) | **Colorimetry** | This is the Colorimetry (the standard whose coefficients were used for conversion into color difference signals) setting. | | |
| | | 0 | **No Data** | No Data |
| | | 1 | **SMPTE170M ITU601** | SMPTE170M/ITU601 |
| | | 2 | **ITU709** | ITU709 |
| | | 3 | **Extended Valid** | Extended Colorimetry Information Valid |
| (12) | **Video Code** | This is the Video Format Identification Code setting. | | |
| | | **0 – 64** | For details on the timings indicated by Code, refer to CEA-861-E. | |
| (13) | **Repetition** | **1 - 10** | This is the Pixel Repetition Factor setting. | |
| (14) | **Top Bar** | **0 - 65535** | This is the Line Number of End of Top Bar setting. (Letter box top bar size setting) | |
| (15) | **Bottom Bar** | **0 - 65535** | This is the Line Number of Start of Bottom Bar setting. (Letter box bottom bar size setting) | |
| (16) | **Left Bar** | **0 - 65535** | This is the Pixel Number of End of Left Bar setting. (Pillar box left bar size setting) | |
| (17) | **Right Bar** | **0 - 65535** | This is the Pixel Number of Start of Right Bar setting. (Pillar box right bar size setting) | |
| (18) | **RGB Quan.Range** | This is the RGB Quantization Range setting (quantization range when RGB images apply to Colorimetry). | | |
| | | 0 | **Default** | |
| | | 1 | **Limited Range** | |
| | | 2 | **Full Range** | |
| (19) | **YCC Quan.Range** | This is the YCC Quantization Range setting (quantization range when YCC images apply to Colorimetry). | | |
| | | 0 | **Limited Range** | |
| | | 1 | **Full Range** | |
| (20) | **Extended Colo.** | This is the Extended Colorimetry setting. (This is referenced when Extended Valid has been set as the Colorimetry setting.) | | |
| | | 0 | **XvYCC601** | |
| | | 1 | **XvYCC709** | |
| | | 2 | **sYCC601** | |
| | | 3 | **AdobeYCC601** | |
| | | 4 | **AdobeRGB** | |

| | | | | | |
|---|---|---|---|---|---|
| (21) | **IT content** | This is the IT Content (whether the transmitted images are IT content) setting. | | | |
| | | 0 | **No Data** | | |
| | | 1 | **IT content** | | |
| (22) | **IT Content Type** | This is the IT Content Type setting. | | | |
| | | 0 | **Graphics** | | |
| | | 1 | **Photo** | | |
| | | 2 | **Cinema** | | |
| | | 3 | **Game** | | |
| (23) | **Checksum** | This is the checksum setting. | | | |
| | | 0 | **Auto** | The value is calculated automatically. | |
| | | 1 | **Manual** | The user sets the value. | |
| | | | **00h - 0FFh** | | |
| (24) | **Length** | | **0 - 15 [byte]** | This is the AVI InfoFrame length setting.<br>(It does not include Packet Header or Checksum.)<br>The default value is 13 (bytes). | *1 |
| (25) | **Data Byte 14, 15** | | **00h - 0FFh** | This sets the values of Data Byte 14 and 15. | |

*1 Checksum, Length, and Data Byte 14,15 are optional. This setting is only valid when the license is registered.
When it is not registered, Checksum is fixed to Auto and Length is fixed to 13 bytes.

## ■ SPD InfoFrame

“SPD InfoFrame” stands for Source Product Description InfoFrame. The information of the transmission device is stored in it, and sent.

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON** | This setting determines whether the SPD InfoFrame is to be sent. | | |
| | | 0 | **OFF** | The SPD InfoFrame is not sent. |
| | | 1 | **ON** | The SPD InfoFrame is sent. |
| The following are the SPD InfoFrame settings. * These settings are not related to the video and audio output settings. | | | | |
| (2) | **Type** | This is the SPD InfoFrame type setting. | | |
| | | **3** | * “Type” is displayed only. It cannot be changed. | |
| (3) | **Version** | This is the SPD InfoFrame version setting. | | |
| | | **1** | Version1 | * “Version” is displayed only. It cannot be changed. |
| (4) | **Vendor Name** | This is the Vendor Name (name of the transmission device vendor) setting. | | |
| | | **Maximum 8 characters** | | For details on the input method, refer to steps ② and beyond in “2.4 Changing program names”. |
| (5) | **Product Description** | This the Product Description (name of the transmission device (model name, etc.)) setting. | | |
| | | **Maximum 16 characters** | | For details on the input method, refer to steps ② and beyond in “2.4 Changing program names”. |
| (6) | **Source Device** | This is the Source Device Information (the type of transmission device) setting. | | |
| | | 0 | **Unknown** | |
| | | 1 | **Digital STB** | |
| | | 2 | **DVD Player** | |
| | | 3 | **D-VHS** | |
| | | 4 | **HDD Video recorder** | |
| | | 5 | **DVC** | |
| | | 6 | **DSC** | |
| | | 7 | **Video CD** | |
| | | 8 | **Game** | |
| | | 9 | **PC general** | |
| | | A | **Blue-Ray Disc** | |
| | | B | **Super Audio CD** | |
| | | C | **HD DVD** | |
| | | D | **PMP** | |

## ■ Audio InfoFrame

The transmission audio information is stored in the Audio InfoFrame, and sent.

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON** | This setting determines whether the Audio InfoFrame is to be sent. | | |
| | | 0 | **OFF** | The Audio InfoFrame is not sent. |
| | | 1 | **ON** | The Audio InfoFrame is sent. |
| The following are the Audio InfoFrame settings. * These settings are not related to the video and audio output settings. | | | | |
| (2) | **Type** | This is the Audio InfoFrame type setting. | | |
| | | **4** | * “Type” is displayed only. It cannot be changed. | |
| (3) | **Version** | This is the Audio InfoFrame version setting. | | |
| | | **1** | * “Version” is displayed only. It cannot be changed. | |
| (4) | **Coding Type** | This is the Audio Coding Type setting. | | |
| | | 0 | **Refer StremHeader** | Refer to Stream Header |
| | | 1 | **IEC60958 PCM** | |
| | | 2 | **AC-3** | |
| | | 3 | **MPEG1(Layers 1&2)** | |
| | | 4 | **MP3(MPEG1 Layer 3)** | |
| | | 5 | **MPEG2(multi ch.)** | |
| | | 6 | **AAC** | |
| | | 7 | **DTS** | |
| | | 8 | **ATRAC** | |
| | | 9 | **One Bit Audio** | |
| | | A | **Dolby Digital +** | |
| | | B | **DTS-HD** | |
| | | C | **MLP** | |
| | | D | **DST** | |
| | | E | **WMA Pro** | |
| | | F | **Refer Extension** | |
| (5) | **Coding Ext Type** | This is the Audio Coding Ext Type setting. | | |
| | | 0 | **HE-AAC** | |
| | | 1 | **HE-AACv2** | |
| | | 2 | **MPEG Surround** | |
| (6) | **Channel Count** | This is the Audio Channel Count setting. | | |
| | | 0 | **Refer StreamHeader** | Refer to Stream Header |
| | | 1 | **2ch** | |
| | | ↓ | ↓ | |
| | | 7 | **8ch** | |
| (7) | **Sampling Freq** | This is the Sampling Frequency setting. | | |
| | | 0 | **Refer StreamHeader** | Refer to Stream Header |
| | | 1 | **32kHz** | |
| | | 2 | **44.1kHz** | |
| | | 3 | **48kHz** | |
| | | 4 | **882-AkHz** | |
| | | 5 | **96kHz** | |
| | | 6 | **176.4kHz** | |
| | | 7 | **192kHz** | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| (8) | **Sample Size** | This is the Sample Size setting. | | | | | | | |
| | | 0 | **Refer StreamHeader** | | | | Refer to Stream Header | | |
| | | 1 | **16bit** | | | | | | |
| | | 2 | **20bit** | | | | | | |
| | | 3 | **24bit** | | | | | | |
| (9) | **Speaker Placement** | This is the Channel/Speaker Allocation setting. | | | | | | | |
| | | | 8ch | 7ch | 6ch | 5ch | 4ch | 3ch | 2ch | 1ch |
| | | **0** | | - | - | - | - | - | FR | FL |
| | | **1** | | - | - | - | - | LFE | FR | FL |
| | | **2** | | - | - | - | FC | - | FR | FL |
| | | **3** | | - | - | - | FC | LFE | FR | FL |
| | | **4** | | - | - | RC | - | - | FR | FL |
| | | **5** | | - | - | RC | - | LFE | FR | FL |
| | | **6** | | - | - | RC | FC | - | FR | FL |
| | | **7** | | - | - | RC | FC | LFE | FR | FL |
| | | **8** | | - | RR | RL | - | - | FR | FL |
| | | **9** | | - | RR | RL | - | LFE | FR | FL |
| | | **10** | | - | RR | RL | FC | - | FR | FL |
| | | **11** | | - | RR | RL | FC | LFE | FR | FL |
| | | **12** | | RC | RR | RL | - | - | FR | FL |
| | | **13** | | RC | RR | RL | - | LFE | FR | FL |
| | | **14** | | RC | RR | RL | FC | - | FR | FL |
| | | **15** | | RC | RR | RL | FC | LFE | FR | FL |
| | | **16** | RRC | RLC | RR | RL | - | - | FR | FL |
| | | **17** | RRC | RLC | RR | RL | - | LFE | FR | FL |
| | | **18** | RRC | RLC | RR | RL | FC | - | FR | FL |
| | | **19** | RRC | RLC | RR | RL | FC | LFE | FR | FL |
| | | **20** | FRC | FLC | - | - | - | - | FR | FL |
| | | **21** | FRC | FLC | - | - | - | LFE | FR | FL |
| | | **22** | FRC | FLC | - | - | FC | - | FR | FL |
| | | **23** | FRC | FLC | - | - | FC | LFE | FR | FL |
| | | **24** | FRC | FLC | - | RC | - | - | FR | FL |
| | | **25** | FRC | FLC | - | RC | - | LFE | FR | FL |
| | | **26** | FRC | FLC | - | RC | FC | - | FR | FL |
| | | **27** | FRC | FLC | - | RC | FC | LFE | FR | FL |
| | | **28** | FRC | FLC | RR | RL | - | - | FR | FL |
| | | **29** | FRC | FLC | RR | RL | - | LFE | FR | FL |
| | | **30** | FRC | FLC | RR | RL | FC | - | FR | FL |
| | | **31** | FRC | FLC | RR | RL | FC | LFE | FR | FL |
| (10) | **Level Shift Value** | This is the Level Shift Value setting. | | | | | | | |
| | | **0 -15** | The decibel (dB) level is set here. | | | | | | |
| (11) | **Down-mix** | This is the Down–mix Inhibit Flag setting. | | | | | | | |
| | | 0 | **Permitted / No Info** | | | Permitted or no information about any assertion of this | | | |
| | | 1 | **Prohibited** | | | Prohibited | | | |

| | | | | |
|---|---|---|---|---|
| (12) | LFE PB Level | This is the LFE Playback Level setting. | | |
| | | 0 | Undnown | |
| | | 1 | 0dB Playback | |
| | | 2 | +10dB Playback | |

## ■ MPEG InfoFrame

If the original source of the data prior to its conversion to HDMI is MPEG data, its information is stored in MPEG InfoFrame, and sent.

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON** | This setting determines whether the MPEG InfoFrame is to be sent. | | |
| | | 0 | **OFF** | The MPEG InfoFrame is not sent. |
| | | 1 | **ON** | The MPEG InfoFrame is sent. |
| The following are the MPEG InfoFrame settings. * These settings are not related to the video and audio output settings. | | | | |
| (2) | **Type** | This is the MPEG InfoFrame type setting. | | |
| | | **5** | * “Type” is displayed only. It cannot be changed. | |
| (3) | **Version** | This is the MPEG InfoFrame version setting. | | |
| | | **1** | * “Version” is displayed only. It cannot be changed. | |
| (4) | **Bit Rate** | **0 – 4294**M **967**k **295**Hz | | This is the MPEG bit rate setting. |
| (5) | **Field Repeat** | This is the Field Repeat setting. | | |
| | | 0 | **New Field(picture)** | |
| | | 1 | **Repeated Field** | |
| (6) | **Frame** | This is the MPEG Frame setting. | | |
| | | 0 | **Unknown(No Data)** | |
| | | 1 | **I Picture** | |
| | | 2 | **B Picture** | |
| | | 3 | **P Picture** | |

## ■ NTSC VBI InfoFrame

The vertical blanking interval (VBI) information is stored in NTSC VBI InfoFrame, and sent.

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON** | This setting determines whether the NTSC VBI InfoFrame is to be sent. | | |
| | | 0 | **OFF** | The NTSC VBI InfoFrame is not sent. |
| | | 1 | **ON** | The NTSC VBI InfoFrame is sent. |
| The following are the NTSC VBI InfoFrame settings. * These settings are not related to the video and audio output settings. | | | | |
| (2) | **Type** | This is the NTSC VBI InfoFrame type setting. | | |
| | | 6 | * “Type” is displayed only. It cannot be changed. | |
| (3) | **Version** | This is the NTSC VBI InfoFrame version setting. | | |
| | | 1 | * “Version” is displayed only. It cannot be changed. | |
| (4) | **PES Length** | 0 – 27 | This sets the PES length. | |
| (5) | **PES 1-5/6-10/11-15/16-20/21-25/26-27** | 00 – FF | This sets the PES data. | |

## ■ ACP Packet

"ACP Packet" stands for Audio Content Protection Packet. The copyright protection information added to DVD-Audio and Super Audio CD contents is stored in it, and sent.

| | | | | | |
|---|---|---|---|---|---|
| (1) | **OFF/ON** | This setting determines whether the ACP Packet is to be sent. | | | |
| | | 0 | **OFF** | The ACP Packet is not sent. | |
| | | 1 | **ON** | The ACP Packet is sent. | |
| The following are the ACP Packet settings. * These settings are not related to the video and audio output settings. | | | | | |
| (2) | **ACP_Type** | This is the ACP Type setting. | | | |
| | | 0 | **Generic Audio** | | |
| | | 1 | **IEC60958 Audio** | | |
| | | 2 | **DVD-Audio** | | |
| | | 3 | **Super Audio CD** | | |
| (3) | **DVD-Audio Type** | This is the DVD-Audio_Type_Dependent_Generation setting. | | | |
| | | **0** | * This must be set to 1 when "DVD-Audio" has been selected as the ACP_Type setting. | | |
| | | **1** | | | |
| (4) | **CopyPermission** | Audio_Copy_permission (the information concerning the permission to copy DVD-Audio content) is set here. | | | |
| | | 0 | **Copy Freely** | | |
| | | 1 | **(reserved)** | | |
| | | 2 | **Specify CopyNumber** | | |
| | | 3 | **No More Copies** | | |
| (5) | **Copy_Number** | Audio_copy_number (the number of times DVD-Audio content may be copied) is set here. | | | |
| | | 0 | **1 copies** | | |
| | | 1 | **2 copies** | | |
| | | 2 | **4 copies** | | |
| | | 3 | **6 copies** | | |
| | | 4 | **8 copies** | | |
| | | 5 | **10 copies** | | |
| | | 6 | **3 copies** | | |
| | | 7 | **Copy OneGeneration** | | |
| (6) | **Quality** | Audio_Quality (the quality in which DVD-Audio content is to be copied) is set here. | | | |
| | | | Channels | Sampling frequency | Bit width |
| | | **0** | 2 channels or less | 48kHz or less | 16 bits or less |
| | | **1** | 2 channels or less | No restrictions | No restrictions |
| | | **2** | No restrictions | No restrictions | No restrictions |
| | | **3** | No restrictions | 48kHz or less | 16 bits or less |
| (7) | **Transaction** | Audio_Transaction (whether the status of optional access control is contained in the DVD-Audio data) is set here. | | | |
| | | 0 | **Not Present** | not present | |
| | | 1 | **(reserved)** | Reserved for copyright management system use | |

| | | | |
|---|---|---|---|
| (8) | **Count_A** | Count_A (the number of times the Super Audio CD contents can be copied by an approved secure recorder) is set here. | |
| | | **0** | Prohibited |
| | | **1 - 254** | Allowed from 1 to 254 times |
| | | **255** | No restrictions |
| (9) | **Count_S** | Count_S (the number of times the Super Audio CD contents can be copied by a secure recorder) is set here. | |
| | | **0** | Prohibited |
| | | **1 - 254** | Allowed from 1 to 254 times |
| | | **255** | No restrictions |
| (10) | **Count_U** | Count_U (the number of times the Super Audio CD contents can be copied by an unlisted recorder) is set here. | |
| | | **0** | Prohibited |
| | | **1 - 254** | Allowed from 1 to 254 times |
| | | **255** | No restrictions |
| (11) | **CCI_Flags_Q_A** | CCI_Flags_Q_A (the quality in which Super Audio CD contents are to be copied by an approved secure recorder) is set here. | |
| | | 0 | **CD Quality** |
| | | 1 | **Unlimited DSD Quality** |
| (12) | **CCI_Flags_Q_S** | CCI_Flags_Q_S (the quality in which Super Audio CD contents are to be copied by a secure recorder) is set here. | |
| | | 0 | **CD Quality** |
| | | 1 | **Unlimited DSD Quality** |
| (13) | **CCI_Flags_Q_U** | CCI_Flags_Q_U (the quality in which Super Audio CD contents are to be copied by an unlisted recorder) is set here. | |
| | | 0 | **CD Quality** |
| | | 1 | **Unlimited DSD Quality** |
| (14) | **CCI_Flags_Move_A** | CCI_Flags_Move_A (whether copying of Super Audio CD contents by individual track onto an approved secure recorder is allowed) is set here. | |
| | | 0 | **Not Allowed** |
| | | 1 | **Allowed** |
| (15) | **CCI_Flags_Move_S** | CCI_Flags_Move_S (whether copying of Super Audio CD contents by individual track onto a secure recorder is allowed) is set here. | |
| | | 0 | **Not Allowed** |
| | | 1 | **Allowed** |
| (16) | **CCI_Flags_Move_U** | CCI_Flags_Move_U (whether copying of Super Audio CD contents by individual track onto an unlisted recorder is allowed) is set here. | |
| | | 0 | **Not Allowed** |
| | | 1 | **Allowed** |

## ■ ISRC Packet

“ISRC Packet” stands for International Standard Recording Code Packet. The sound source identification codes and other information are stored in it, and sent.

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON ISRC1** | This setting determines whether the ISRC1 Packet is to be sent. | | |
| | | 0 | **OFF** | The ISRC1 Packet is not sent. |
| | | 1 | **ON** | The ISRC1 Packet is sent. |
| (2) | **OFF/ON ISRC2** | This setting determines whether the ISRC2 Packet is to be sent. | | |
| | | 0 | **OFF** | The ISRC2 Packet is not sent. |
| | | 1 | **ON** | The ISRC2 Packet is sent. |
| The following are the ISRC Packet settings. * These settings are not related to the video and audio output settings. | | | | |
| (3) | **ISRC_Cont** | This is the ISRC Continued setting. | | |
| | | **0** | ISRC2 is not sent. | |
| | | **1** | ISRC2 is sent. | |
| (4) | **ISRC_Valid** | This is the ISRC Valid setting.<br>(ISRC Valid indicates whether data has been set to the ISRC_Status in the ISRC Packet and whether the UPC_EAN_ISRC_XX field is valid.) | | |
| | | **0** | Invalid | |
| | | **1** | Valid | |
| (5) | **ISRC_Status** | This is the ISRC_Status setting.<br>(ISRC_Status indicates the position on the current track.) | | |
| | | 0 | **Starting** | |
| | | 1 | **Intermediate** | |
| | | 2 | **Ending** | |
| (6) | **Validity Info** | This is the Validity information setting.<br>(This indicates whether the ISRC and UPC/EAN data is valid or invalid.) | | |
| | | 0 | **Vo Validity** | |
| | | 1 | **ISRC** | |
| | | 2 | **UPC/EAN** | |
| | | 3 | **UPC/EAN and ISRC** | |
| (7) | **Catalogue Code** | This is the Catalogue Code (UPC/EAN #1 - 13) setting. | | |
| | | **Number consisting of 13 digits** | | |
| (8) | **Country Code** | This is the Country Code (ISRC #1 - 2) setting. | | |
| | | **Character string consisting of 2 letters** | | |
| (9) | **First Owner Code** | This is the First Owner Code (ISRC #3 - 5) setting. | | |
| | | **Character string consisting of 3 alphanumerics** | | |
| (10) | **Year of Rec. Code** | This is the Year-of-recording code (ISRC #6 - 7) setting. | | |
| | | **Number consisting of 2 digits** | | |
| (11) | **Recording-item Code** | This is the Recording code/Recording-item code (ISRC #8 -12) setting. | | |
| | | **Number consisting of 5 digits** | | |

## ■ Gamut Metadata Packet

If the transmission images have been sent by xvYCC, their color space information (range, etc.) is stored in the Gamut Metadata Packet, and sent.

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON** | This setting determines whether the Gamut Metadata Packet is to be sent. | | |
| | | 0 | **OFF** | The Gamut Metadata Packet is not sent. |
| | | 1 | **ON** | The Gamut Metadata Packet is sent. |
| The following are the Gamut Metadata Packet settings. * These settings are not related to the video and audio output settings. | | | | |
| (2) | **Next-Field** | This is the Next_Field setting.<br>(This indicates whether GBD (Gamut Boundary Description) sent in this Gamut Metadata Packet is applicable to the next video field.) | | |
| | | **0** | Not applicable | |
| | | **1** | Applicable | |
| (3) | **No_Current_GBD** | This is the No_Current_GBD setting.<br>(This indicates whether GBD sent in this Gamut Metadata Packet is valid or invalid.) | | |
| | | **0** | Invalid | |
| | | **1** | Valid | |
| (4) | **GBD_Profile** | This is the GBD_Profile setting. | | |
| | | **0** | P0 | |
| | | **1** | P1 | |
| | | **2** | P2 | |
| | | **3** | P3 | |
| (5) | **AffectedGamutSeqNum** | **0 - 15** | This is the Affected_Gamut_Seq_Num setting.<br>(This indicates the number of GBD (Gamut boundary description) sent in this Gamut Metadata Packet.) | |
| (6) | **Current_GamutSeqNum** | **0 - 15** | This is the Current_Gamut_Seq_Num setting.<br>(This indicates the number of the GBD that applies to the current video field.) | |
| (7) | **Packet_Seq** | This is the Packet_Seq setting.<br>(This identifies what this Gamut Metadata Packet is in the Gamut Metadata Packet Sequence.) | | |
| | | 0 | **Intermediate** | Intermediate packet in sequence |
| | | 1 | **First** | First packet in sequence |
| | | 2 | **Last** | Last packet in sequence |
| | | 3 | **Only** | Only packet in sequence |
| (8) | **Format_Flag** | This is the Format_Flag setting.<br>(This indicates the format of the GBD sent.) | | |
| | | 0 | **Vertices/Facets** | Vertices/Facets description |
| | | 1 | **Range** | Range description |
| (9) | **Colorprecision** | This is the GBD_Color_Precision setting.<br>(This indicates the precision (bit width) of the vertex and range data in GBD.) | | |
| | | 0 | **8bit** | |
| | | 1 | **10bit** | |
| | | 2 | **12bit** | |

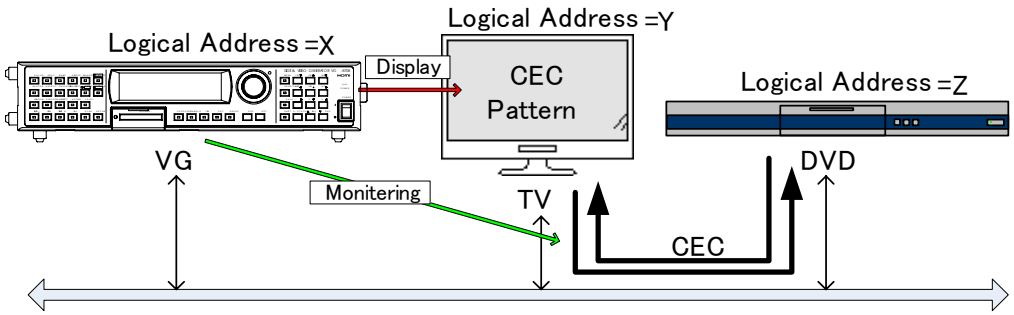
<table>
<tr><td>(10)</td><td>Color_Space</td><td colspan="3">This is the GBD_Color_Space setting.<br>■ When Vertices/facets (0) has been selected as the Format_Flag setting</td></tr>
<tr><td></td><td></td><td>0</td><td>ITU-R BT.709</td><td>ITU-R BT.709 (using RGB)</td></tr>
<tr><td></td><td></td><td>1</td><td>xvYCC601</td><td>xvYCC601 (IEC61966-2-4-SD) (using YCbCr)</td></tr>
<tr><td></td><td></td><td>2</td><td>xvYCC709</td><td>xvYCC709 (IEC61966-2-4-HD) (using YCbCr)</td></tr>
<tr><td></td><td></td><td>3</td><td>XYZ</td><td>XYZ</td></tr>
<tr><td></td><td></td><td colspan="3">■ When Range (1) has been selected as the Format_Flag setting</td></tr>
<tr><td></td><td></td><td>0</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td></td><td></td><td>1</td><td>xvYCC601</td><td>RGB expression of xvYCC601 coordinates</td></tr>
<tr><td></td><td></td><td>2</td><td>xvYCC709</td><td>RGB expression of xvYCC709 coordinates</td></tr>
<tr><td></td><td></td><td>3</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>(11)</td><td>Number_Vertices</td><td colspan="3">This is the Number_Vertices setting.<br>* This is displayed only when Vertices/Facets (0) has been selected as the Format_Flag setting.</td></tr>
<tr><td></td><td></td><td colspan="3">Colorprecision =<br>8bit : 4 - 8<br>10bit : 4 - 6<br>12bit : 4 - 5</td></tr>
<tr><td>(12)</td><td>Packed_GBD_ Vertices_Data</td><td colspan="3">This is the Packed_GBD_Vertices_Data setting.<br>* This is displayed only when Vertices/Facets (0) has been selected as the Format_Flag setting.</td></tr>
<tr><td></td><td>Data1<br>Data2<br>Data3<br>Data4</td><td>Colorprecision =<br>8bit : 0 - 255<br>10bit: 0 - 1023<br>12bit: 0 - 4095</td><td colspan="2">The Y, Cb and Cr values of the colors (Data) are set here.</td></tr>
<tr><td>(13)</td><td>Packed_Range_ Data</td><td colspan="3">This is the Packed_Range_Data setting.<br>* This is displayed only when Range (1) has been selected as the Format_Flag setting.</td></tr>
<tr><td></td><td>Min_Red<br>Max_Red<br>Min_Green<br>Max_Green<br>Min_Blue<br>Max_Blue</td><td colspan="2">Colorprecision =<br>8bit : -3.96875 - +3.96875<br>10bit: -3.9921875 - +3.9921875<br>12bit: -3.998046875 - +3.998046875</td><td>The Range Data of the colors (Red, Green and Blue) are set here.</td></tr>
</table>

## 5.2.4 CEC

HDMI can send and receive the CEC commands, and display them on the screen.
The CEC function has three operation modes.

**a) Monitor mode (Monitor)**

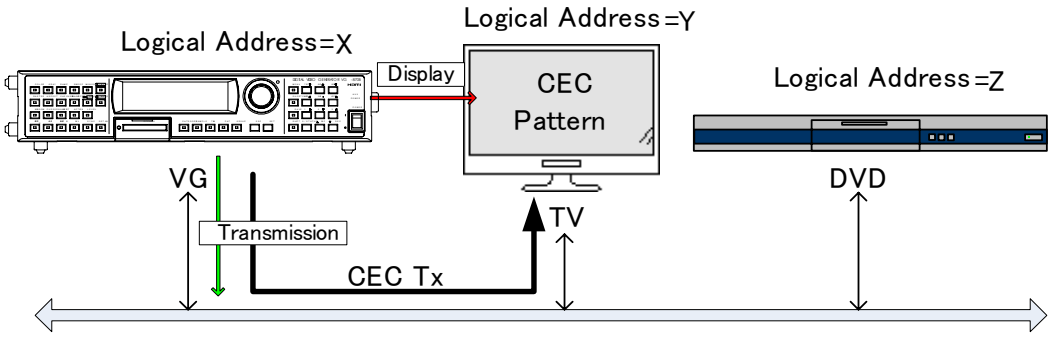
In this mode, the sending and receiving of the commands generated between the equipment connected to CEC are displayed on the screen.




Monitor Mode

**b) Transmission mode (Transmission)**

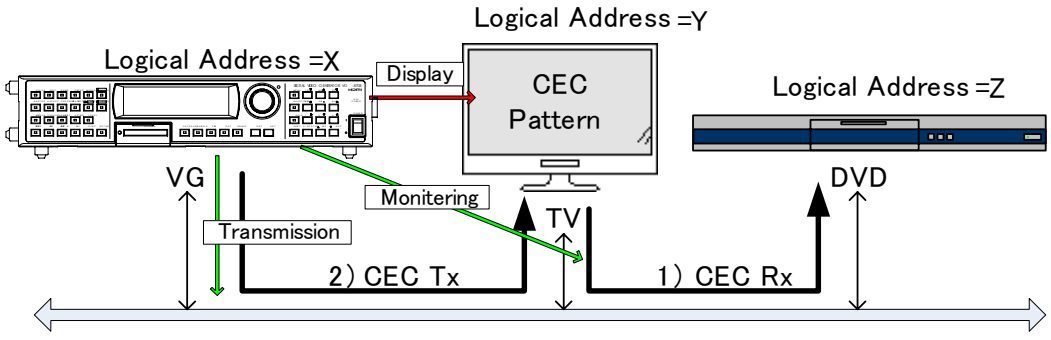
In this mode, the commands are sent from the generator to the designated logical address.




Transmission Mode

**c) Response mode (Response)**

In this mode, the commands are sent as responses when the designated commands have been transmitted.



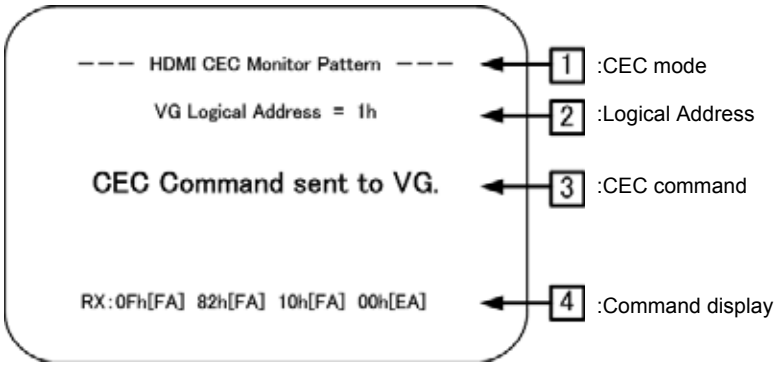

Response Mode

**CEC display method**

| | | |
|---|---|---|
| ① | NAME/LIST DETAIL → NAME/LIST DETAIL | |
| ② | **Selecting CEC**<br>Select **CEC** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | **Advanced setting: Selecting EDIT**<br>Select **EDIT** using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively, select **EDIT** using 0/STATUS.<br>After editing the setting items, select **EXECUTE** and press the SET key to enable the setting. | |

**Table of CEC setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **VG Logical Address** | This sets the logical address of the VG generator. (0 to F) | | |
| (2) | **Port(0-1)** | This sets the port used for CEC execution. | | |
| | | 0 | **HDMI1** | CEC is executed using HDMI1. |
| | | 1 | **HDMI2** | CEC is executed using HDMI2. |
| | | 2 | **HDMI3** | CEC is executed using HDMI3. |
| | | 3 | **HDMI4** | CEC is executed using HDMI4. |
| (3) | **Mode(0-2)** | The operating mode is set here. | | |
| | | 0 | **Monitor** | The CEC commands are monitored. |
| | | 1 | **Transmission** | The CEC commands set using items (4) to (7) are transmitted. |
| | | 2 | **Response** | When commands have been received under conditions (8) to (12), the CEC commands set using items (4) to (7) are transmitted. |
| Set here the CEC commands to be sent from the VG-882-A.<br>The following items are set when **Transmission** or **Response** has been selected as the **Mode** setting. | | | | |
| (4) | **Tx** \| Destination | - | This sets the address of the **destination** (transmission destination of CEC commands). | |
| (5) | **Tx** \| Opcode | - | This sets the OPCode. | |
| (6) | **Tx** \| Data Length | 0-14 | This sets the length of the **Tx** \| data. | |
| (7) | **Tx** \| Data [H] 1-6 /7-12/13-14 | - | This sets the CEC command data. | |
| Set here the CEC commands to be received from the VG-882-A.<br>The following items are set when **Response** has been selected as the **Mode** setting. | | | | |
| (8) | **Rx** \| Initiator | 0-E | This sets the address of the initiator. | |
| (9) | **Rx** \| Destination | 0-F | This sets the address of the **destination**.<br>This can also be set using a **logical address** other than the one set using item (1). | |
| (10) | **Rx** \| Opcode | - | This sets the OPCode. | |
| (11) | **Rx** \| Data Length | 0-14 | This sets the length of the **Rx** \| data. | |
| (12) | **Rx** \| Data [H] 1-6 /7-12/13-14 | - | This sets the CEC command data. | |


--- HDMI CEC Monitor Pattern ---
VG Logical Address = 1h
CEC Command sent to VG.
RX:0Fh[FA] 82h[FA] 10h[FA] 00h[EA]
1 :CEC mode
2 :Logical Address
3 :CEC command
4 :Command display

| | | |
|---|---|---|
| 1 | CEC mode | "HDMI CEC Monitor Pattern": Monitor mode<br>"HDMI CEC Transmission Pattern": Command transmission mode<br>"HDMI CEC Response Pattern": Command response mode |
| 2 | Logical Address | VG logical address that has been set |
| 3 | Display of CEC command transmission/reception status | "CEC Command send to Device Xh"<br>: The command has been transmitted to the unit (Destination Logical Address Xh) that has been set.<br>"CEC Command sent to VG"<br>: The generator has received a command. (Command destined to the VG logical address that has been set.)<br>"CEC Command sent to Other Devices"<br>: A command has been transferred to a unit other than the generator. (A command to a VG logical address other than the one that has been set)<br>"Waiting Command ····"<br>: Command wait status (when a command is not transmitted or received for at least 5 seconds) |
| 4 | Command display | When the corresponding command has been transmitted or received, it is displayed.<br>**XXh[FA] XXh[FA] XXh[FA] XXh[EA]**<br>Acknowledge<br>A: Provided<br>N: Not provided<br>End of Message<br>E: Yes<br>F: No<br>Data portion<br>TX is a command that is transmitted by the generator; RX is a command that is received by the generator.<br>* Commands sent to the destination address of Fh are judged to be broadcast messages and are displayed using the polarity that is the reverse of regular ACK polarity. |

## 5.2.5 HDCP（High-bandwidth Digital Content Protection）

**HDCP setting procedure**

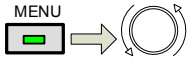
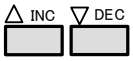
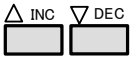
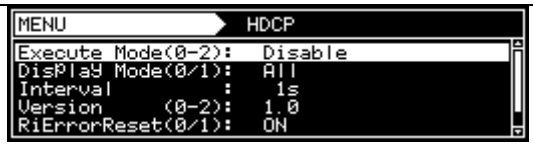
| | | |
|---|---|---|
| ① | Select **Configuration** using MENU  or △ INC ▽ DEC  , and then press SET . | |
| ② | Select **HDCP** using or △ INC ▽ DEC  , and then press SET . |  |

**Table of HDCP setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Execute Mode (0-2)** | This sets the HDCP execution mode. | | |
| | | 0 | **Disable** | HDCP is not executed. |
| | | 1 | **Enable** | HDCP is executed. |
| | | 2 | **Program** | This sets whether to execute HDCP for each program. |
| (2) | **Display Mode(0-1)** | This sets the display mode of the HDCP authentication screen. | | |
| | | 0 | **All** | All authentication values are displayed. |
| | | 1 | **NG Only** | The authentication value is displayed only when the status is NG. |
| (3) | **Interval** | This sets the interval for performing authentication. | | |
| | | 1s-10s | | Set from 1 to 10 seconds. |
| (4) | **Version(0-2)** | This sets the HDCP version. | | |
| | | 0 | **1.0** | Operates as HDCP 1.0. |
| | | 1 | **1.1 / 1.2** | Operates as HDCP 1.1/1.2.***1** |
| | | 2 | **EDID Check** | The version is determined by checking the EDID. |
| (5) | **RiErrorReset(0/1)** | This sets whether to perform authentication again when an HDCP authentication error occurs. | | |
| | | 0 | **OFF** | Do not perform authentication again when an error occurs. |
| | | 1 | **ON** | Perform authentication again when an error occurs. |
| (6) | **FIFO Ready(0-8)** | This sets the restriction value of the wait time until “FIFO Ready” is returned when the connection device is a repeater. | | |
| | | 0 | **OFF** | 30 seconds |
| | | 1-7 | **600ms～4,200ms** | Increases in increments of 600 ms. |
| | | 8 | **5,000ms** | 5 seconds |

***1** Advance Cipher/Enhanced Link Verification is not supported.

**Executing HDCP**

HDCP can be executed with any of the following three operations.

a) Enable or disable HDCP setting the custom key to ON or OFF

b) Enable or disable HDCP using the configuration

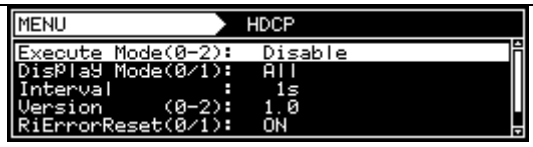
c) Enable or disable HDCP for each program

**a) Enabling or disabling HDCP setting the custom key to ON or OFF**

When the program is changed, this setting is canceled and either **b)** or **c)** below takes effect.

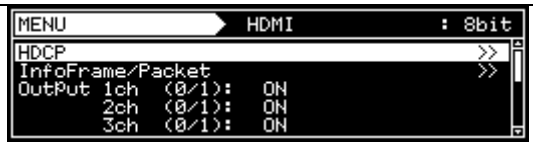
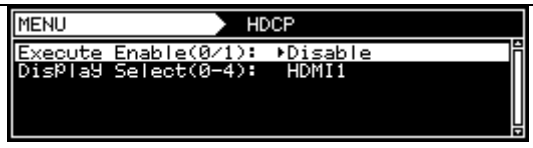
| | | |
|---|---|---|
| ① | I.HDCP | HDCP is executed and the authentication results screen is displayed on the test pattern. |

**b) Enabling or disabling HDCP using the configuration**

| | | | | |
|---|---|---|---|---|
| ① | Select **Configuration** using MENU, or INC DEC, and then press SET. | | | |
| ② | Select **HDCP** using or INC DEC, and then press SET. |  | | |
| ③ | Select **Execute Mode** using or INC DEC, and then press SET. | This sets the HDCP execution mode. | | |
| | | 0 | **Disable** | HDCP is not executed. |
| | | 1 | **Enable** | HDCP is executed. |
| | | 2 | **Program** | This sets whether to execute HDCP for each program. |

**c) Enabling or disabling HDCP for each program**

* This setting takes effect when **Program** has been selected for the HDCP execution mode of "**b) Enabling or disabling HDCP using the configuration**" above.

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU, or INC DEC, and then press SET. | |
| ② | Select **Output (TIM)** using or INC DEC, and then press SET. | |
| ③ | Select **HDMI** using or INC DEC, and then press SET. |  |
| ④ | Select **HDCP** using or INC DEC, and then press SET. |  |

⑤

Select the items using or △ INC ▽ DEC, and then press SET.

**Inputting the parameters**

Select the parameters using or △ INC ▽ DEC, and then press SET.

Alternatively:

Select the parameters using 0/STATUS to 9/F (number keys), and then press SET.

**Execute Enable(0/1)**
This sets whether to execute HDCP.
All video interfaces for which HDCP can be executed are affected by this setting. HDCP is also executed at the same time.

| | | |
|---|---|---|
| 0 | **Disable** | HDCP is not executed. |
| 1 | **Enable** | HDCP is executed. |

**Display Select(0-7)**
The HDCP authentication status can be displayed by only one video interface.

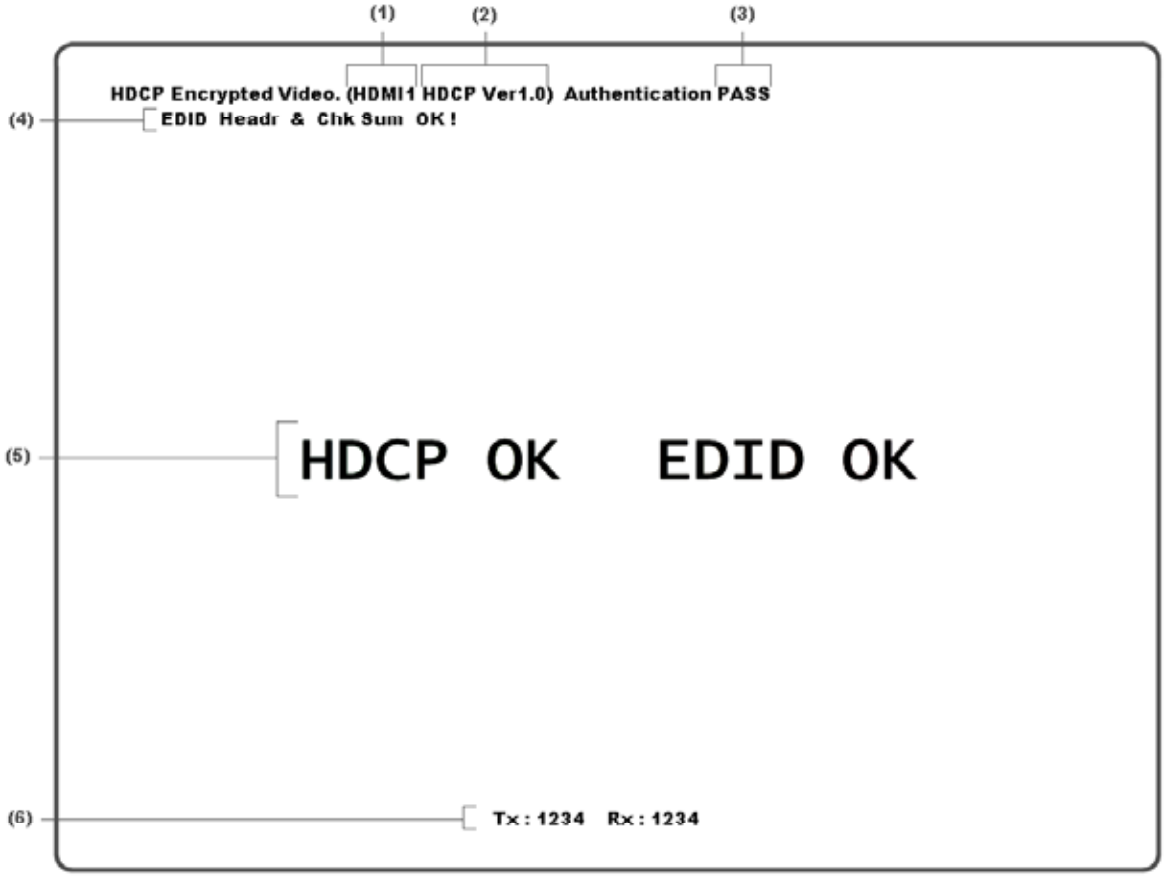
| | | |
|---|---|---|
| 0 | **Disable** | Do not display the status. |
| 1 | **HDMI1** | Display the status of channel 1 of the HDMI unit. |
| 2 | **HDMI2** | Display the status of channel 2 of the HDMI unit. |
| 3 | **HDMI3** | Display the status of channel 3 of the HDMI unit. |
| 4 | **HDMI4** | Display the status of channel 4 of the HDMI unit. |

**HDCP execution results display**

During execution of HDCP, the authentication results and other information is displayed on the screen.
(If another pattern is being displayed, the information is displayed on top of that pattern.)

① When HDCP has been selected for the NAME/LIST pattern
For details of the screen and display content, refer to "**4.13.3 HDCP**".

② Otherwise
The following screen is displayed.



Details of the displayed information are given below.

**HDCP authentication screen (simplified) display data**

| | |
|---|---|
| (1) | This displays the port selected in **c) Display Select** of "**5.2.5 HDCP Execution**". |
| (2) | This displays the HDCP version.<br>(When HDCP authentication has failed, an error message is displayed.) |
| (3) | The HDCP authentication result (success: PASS, fail: NG) is displayed. |
| (4) | This displays the EDID header and checksum check result.<br>(The results are displayed only when **AUTO** has been selected as the **HDMI or DVI** setting in "**5.2.2 HDMI setting procedure**" or when **EDID Check** has been selected as the **Version** setting in "**5.2.5 <HDCP Setting item list>**".) |
| (5) | This displays the HDCP authentication status (OK/NG) and the EDID header and checksum check result (OK/NG).<br>(The EDID check result is displayed only when **AUTO** has been selected as the **HDMI or DVI** setting in "**5.2.2 HDMI setting procedure**" or when **EDID Check** has been selected as the **Version** setting in "**8.1 HDCP settings**".) |
| (6) | This displays the Synchronization Verification Values, which are used for checking the validity of links.<br>Tx is the value calculated for the transmitter; Rx is the value calculated for the receiver.<br>This is displayed each time HDCP authentication and encryption are completed.<br> <br><br>Refer to "5.2.6 HDCP/CEC/EDID Multi-port display" for details. This is license option. |

## 5.2.6 Multi-port HDCP/EDID/CEC Test

* This function requires licence registration. Please contact ASTRODESIGN for more details about purchase of the licence.

By setting List display “OFF” and HDCP “ON,” VG-882-A can check all the ports simultaneously for HDCP/EDID/CEC test.

■ Setting of Display Mode

| | | | | |
|---|---|---|---|---|
| ① | With MENU or △INC ▽DEC<br>choose **Configuration** SET | | | |
| ② | With or △INC ▽DEC<br>choose **HDCP/EDID/CEC Check** SET | | | |
| ③ | With or △INC ▽DEC<br>choose **Display Mode** SET | | | |
| | **<Parameter Input>**<br>With or △INC ▽DEC, choose SET<br>Or<br>0/STATUS – 9/F use Number keys SET | Display Mode Configuration | | |
| | | 0 | Standard | Standard dysplay |
| | | 1 | Collective | Simultaneous disyplay;<br>Show items set at Item Selct simultaneously. |

■ Setting of Item Select

| | | |
|---|---|---|
| ① | With or △INC ▽DEC<br>choose **Item Select** SET | <br>Select “Collective at” Display Mode, then you will see “Item Select” in the next line |
| ② | With or △INC ▽DEC<br>choose items to show simultaneously SET | |

<Judgement of PASS/NG>
(1) HDCP
Regarding HDCP to be “ON,” the test will check whether or not HDCP authentication works properly.

(2) EDID
Reading EDID in a certain cycle, the test will show “PASS” when it meets the following two conditions.
- Reading EDID works normally
- EDID headers and checksums are normal

(3) CEC
Transmitting CEC commands to each HDMI port one by one during program execution, the test will show “PASS” when ACK response properly occurs. The CEC transmission data/parameters will refer to data of CEC List of program data.
CEC check will be made in the following situations:
- Mode is “Transmission”
- Tx Destination has any value except “Fn”
CEC check will not be carried out (nor displayed) without these conditions.

<Displayable Items>
Multi-port HDCP/EDID/CEC test covers the following items in the table below.

| Output | HDCP | EDID | CEC |
|---|---|---|---|
| VGA | | VGA-1 | |
| HDMI | HDMI-1<br>HDMI-2<br>HDMI-3<br>HDMI-4 | HDMI-1<br>HDMI-2<br>HDMI-3<br>HDMI-4 | HDMI-1<br>HDMI-2<br>HDMI-3<br>HDMI-4 |

## 5.2.7 EDID

For the advanced setting procedure, refer to “**4.13.5 EDID**”.

## 5.2.8 DDC/CI

For the advanced setting procedure, refer to “**4.13.6 DDC/CI**”.

## 5.2.9 ARC（Audio Return Channel）

This executes the Audio Return Channel function and displays patterns for related data.

**Audio Return Channel display method**

| | | |
|---|---|---|
| ① | NAME/LIST DETAIL → NAME/LIST DETAIL | |
| ② | **Selecting HDMI ARC**<br>Select **HDMI ARC** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | **Advanced setting: Selecting EDIT**<br>Select **EDIT** using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively, select **EDIT** using 0/STATUS.<br>After editing the setting items, select **EXECUTE** and press the SET key to enable the setting. | |

**Table of Audio Return Channel setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **VG Logical Address** | This sets the logical address of the VG generator. (0 to F) | | |
| (2) | **Port(0/1)** | This sets the port used for Audio Return Channel execution. | | |
| | | 0 | **HDMI1** | Audio Return Channel is executed using HDMI1. |
| | | 1 | **HDMI2** | Audio Return Channel is executed using HDMI2. |
| | | 2 | **HDMI3** | Audio Return Channel is executed using HDMI3. |
| | | 3 | **HDMI4** | Audio Return Channel is executed using HDMI4. |
| (3) | **Mode (0/1)** | The operating mode is set here. | | |
| | | 0 | **Use CEC** | This controls the start and end of ARC using CEC commands. |
| | | 1 | **Audio Monitor** | This starts acquisition of audio without using CEC commands. |
| (4) | **CEC Command (0-2)** | The operation is set when **Use CEC(0)** has been selected as the **Mode** setting. | | |
| | | 0 | **Wait Request** | Operations are in response to ARC start and end requests from ARC TX. |
| | | 1 | **Initiate** | ARC starts from ARC RX(VG).<br>(The Initiate ARC command is sent.) |
| | | 2 | **Terminate** | ARC ends from ARC RX(VG).<br>(The Terminate ARC command is sent.) |
| (5) | **Follower : Mode (0/1)** | This sets the transmission destination of CEC commands. | | |
| | | 0 | **Auto** | Commands are sent to a neighboring VG device.* |
| | | 1 | **Manual** | Commands are sent by specifying the logical address. |
| (6) | **Follower : LogicalAddr** | This sets the logical address to which commands are sent when **Manual(1)** has been set for **Follower: Mode**.<br>(0-F) | | |

CAUTION

When **Auto(0)** has been selected for **Follower: Mode**

- To set the neighboring VG device, confirm the VG connection location by reading the physical address of the EDID connected to VG. If it is determined that the physical address cannot be acquired (because the EDID of the connection destination cannot be read or the EDID is not an HDMI EDID), an error occurs. In this case, **EXECUTE** must be performed again.

- CEC commands are sent from VG to set the neighboring VG device. When a response to a command is invalid and VG cannot set the neighboring device, an error occurs. In this case, **EXECUTE** must be performed again.

- When it is determined from the response to that command that there are two or more devices in the vicinity of VG (because the physical address is the same, etc.), the neighboring device is determined with priority given to the device with the smallest logical address.

---

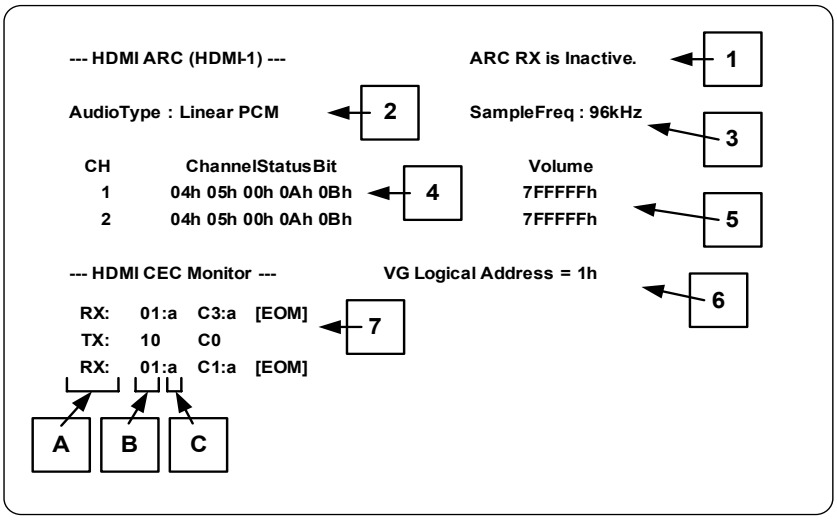
A response is sent to the following received commands when the ARC pattern is selected.

When **Auto(0)** has been selected for **Follower: Mode**

| Received command | | Response command | |
|---|---|---|---|
| Command | Sent from | Command | Sent to |
| Give Physical Address | All | Report Physical Address<br>* Only when a physical address can be acquired from EDID<br>* The device type of the address set with **VG Logical Address** is used for the device type from among the parameters. However, a separate device type is used for the following addresses.<br>Ch : Reserved<br>Dh : Reserved<br>Eh : Video Processor<br>Fh: No response | Broadcast |
| Request ARC Initiation | Neighboring device | Initiate ARC | Neighboring device |
| Request ARC Termination | Neighboring device | Terminate ARC | Neighboring device |

When **Manual(1)** has been selected for **Follower: Mode**

| Received command | | Response command | |
|---|---|---|---|
| Command | Sent from | Command | Sent to |
| Request ARC Initiation | **Follower: LogicalAddr** setting | Initiate ARC | **Follower: LogicalAddr** setting |
| Request ARC Termination | **Follower: LogicalAddr** setting | Terminate ARC | **Follower: LogicalAddr** setting |




Audio data is displayed at the top and CEC sent and received data is displayed at the bottom of the Audio Return Channel screen.

Audio data only is displayed when **Audio Monitor(1)** has been selected for **Mode**.

**Table of displayed audio data items**

| | | |
|---|---|---|
| (1) | Status display | This displays the execution status of the ARC function of VG. |
| | ARC RX is Inactive. | The ARC receiving function is not being executed. |
| | ARC RX is Active. | The ARC receiving function is being executed. |
| (2) | AudioType | This displays the audio type. |
| (3) | SampleFreq | This displays the sampling frequency. |
| (4) | ChannelStatusBit | This displays the channel status. |
| (5) | Volume | This displays the volume (peak) value. (Only Linear PCM) |

* Audio data is not displayed when **Use CEC(0)** has been selected for **Mode** unless CEC commands are communicated properly.

**Table of displayed CEC data items**

| | | |
|---|---|---|
| (6) | VG Logical Address | This displays the logical address of VG. |
| (7) | CEC sent/received data | This displays the CEC command data sent from VG or other devices. |
| | (A) RX/TX | RX is a command that is received by VG; TX is a command that is transmitted by VG. |
| | (B) Data portion | This displays the block data (00-FF). |
| | (C) ACK portion | This displays the block ACK data (a: ACK present, n: ACK not present).<br>* Only received commands are displayed. |

Regarding the display items (7) above, the following information is displayed.

| | |
|---|---|
| [E_BUS] | When an attempt was made to send a command from VG, the bus was not released; therefore, the command was not sent. |
| [E_ACK] | There was no ACK in the command sent from VG. |
| [E_ARB] | When an attempt was made to send a command from VG, there was interference from another command and sending of the command could not be completed. |
| [EOM] | The block EOM is set. * This is only displayed for received commands. |

# 5.3 Component output

## 5.3.1 Common component signal settings

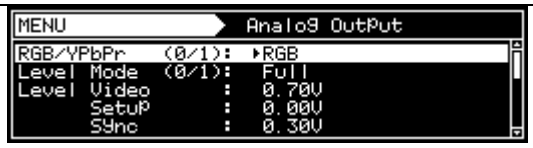
The video, sync, and other levels can be set for analog component signals. These settings are applied to all component outputs.

In level mode, it is possible to output video, switching between HDMI standard Limited Range and the normal Full Range.

(For details of the level mode, refer to the table on the next page.)

*** The level of the video parts of analog output can be changed, but there is no change for either pedestal level and peak level when set to Full Range.**

**Setting procedure**

<table>
<tr><td>①</td><td>Select Program Edit using MENU or △INC ▽DEC, and then press SET.</td><td>
</td></tr>
<tr><td>②</td><td>Select Output (TIM) using or △INC ▽DEC, and then press SET.</td><td>
</td></tr>
<tr><td>③</td><td>Select Analog using or △INC ▽DEC, and then press SET.</td><td> 
</td></tr>
<tr><td>④</td><td>Select the items using or △INC ▽DEC, and then press SET.<br>Select the numerical value using or △INC ▽DEC, and then press SET.<br>Alternatively:<br>Select using 0/STATUS to 9/F (number keys), and then press SET.</td><td>Set each parameter.
<table>
<tr><td colspan="2">RGB/YPbPr</td><td colspan="3">Set the color format here.</td></tr>
<tr><td colspan="2" rowspan="2"></td><td>0</td><td>RGB</td><td>The signal is output in RGB.</td></tr>
<tr><td>1</td><td>YPbPr</td><td>The signal is output in YPbPr.</td></tr>
<tr><td colspan="2">Level Mode</td><td colspan="3">The video level range is set here.</td></tr>
<tr><td colspan="2" rowspan="2"></td><td>0</td><td>Full</td><td>This outputs video with Full Range.</td></tr>
<tr><td>1</td><td>Limited</td><td>This outputs video with Limited Range.</td></tr>
<tr><td rowspan="4">Level</td><td rowspan="3">Video</td><td colspan="3">The video level is set here.</td></tr>
<tr><td>0.05-1.20V</td><td>When Video-on-Sync is OFF</td></tr>
<tr><td>0.30-1.20V</td><td>When Video-on-Sync is ON</td></tr>
<tr><td>Setup</td><td>0.00-0.25V</td><td>The setup level is set here.</td></tr>
<tr><td>Sync</td><td>0.00-0.60V</td><td>The sync signal (Video-On-Sync) level is set here.</td></tr>
</table></td></tr>
<tr><td></td><td>MENU</td><td>Display returns to the initial screen.</td></tr>
</table>

CAUTION

Configure the setting so that the Video setting is equal to or greater than the Setup, Sync, or Setup+Sync settings.

**Video range of Full Range**

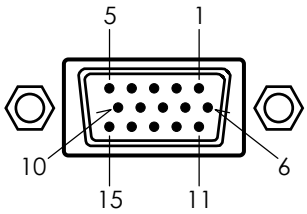
| | 8BIT | 10BIT | 12BIT |
|---|---|---|---|
| R/G/B/Y/Cb/Cr | 0-255 | 0-1023 | 0-4095 |

**Video range of Limited Range**

| | 8BIT | 10BIT | 12BIT |
|---|---|---|---|
| R/G/B/Y | 16-235 | 64-940 | 256-3760 |
| Cb/Cr | 16-240 | 64-960 | 256-3840 |

## 5.3.1 VGA (D-Sub) output

### 5.3.1.1 Connectors and pin assignments




| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | R | 9 | +5V (DDC power supply*1) |
| 2 | G | 10 | GND |
| 3 | B | 11 | GND |
| 4 | NC | 12 | DDC DATA |
| 5 | NC | 13 | HS |
| 6 | GND（R） | 14 | VS |
| 7 | GND（G） | 15 | DDC CLK |
| 8 | GND（B） | | |

*1 Restrictions apply to the supply current of the DDC power supply. Refer to “11.1 Maximum Currency for DDC ”.

### 5.3.1.2 Setting the video level

For the control method, refer to “**5.1.7 Setting the analog video level**”.

### 5.3.1.3 Setting the sync signal

For the control method, refer to “**5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities**”.

### 5.3.1.4 EDID function

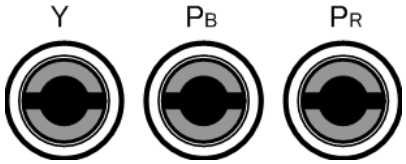
For the control method, refer to “**4.13.5 EDID list**”.

### 5.3.1.5 DDC/CI function

For the control method, refer to “**4.13.6 DDC/CI list**”.

## 5.3.2 YPbPr output

#### 5.3.2.1 Connectors and pin assignments




| Connector | Signal |
|---|---|
| Y | Y |
| PB | Pb |
| PR | Pr |

#### 5.3.2.2 Setting the video level

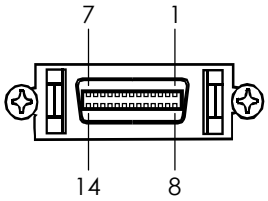
For the control method, refer to "**5.1.7 Setting the analog video level**".

#### 5.3.2.3 Setting the sync signal

For the control method, refer to "**5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities**".

## 5.3.3 D5 output

#### 5.3.3.1 Connectors and pin assignments




| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | Y | 8 | Line 1 |
| 2 | GND（Y） | 9 | Line 2 |
| 3 | Pb | 10 | NC |
| 4 | GND（Pb） | 11 | Line 3 |
| 5 | Pr | 12 | NC |
| 6 | GND（Pr） | 13 | NC |
| 7 | NC | 14 | NC |

#### 5.3.3.2 Setting the video level

For the control method, refer to "**5.1.7 Setting the analog video level**".

#### 5.3.3.3 Setting the sync signal

For the control method, refer to "**5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities**".

#### 5.3.3.4 Setting the ID signals

ID signals indicating the resolution, scanning system and aspect ratio can be output from the D-terminal. The ID signals are DC signals, and they identify the formats using three lines. These lines are referred to as line 1, line 2 and line 3.

**Setting procedure**

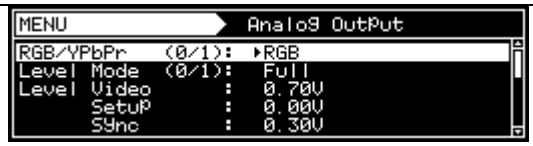
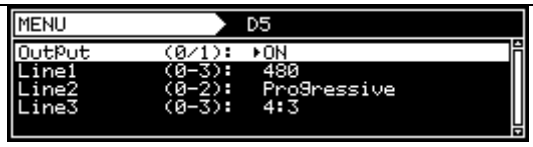
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU, or INC DEC, and then press SET. | |
| ② | Select **Output (TIM)** using or INC DEC, and then press SET. | |
| ③ | Select **Analog** using or INC DEC, and then press SET. |  |
| ④ | Select **D5** using or INC DEC, and then press SET. |  |
| ⑤ | **Selecting the items**<br>Select the items using or INC DEC, and then press SET. | For details on the setting items and parameters, refer to "**Table of D5 setting items**" below. |
| | **Setting the parameters**<br>Select the parameters using or INC DEC, and then press SET.<br><br>Alternatively:<br>Select using 0/STATUS to 9/F (number keys), and then press SET. | |
| | **After completing the settings:**<br>MENU | Display returns to the initial screen. |

**Table of D5 setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Line1(0-2)** | Line1: This sets the resolution. | | |
| | | 0 | **480** | 720×480 |
| | | 1 | **720** | 1280×720 |
| | | 2 | **1080** | 1920×1080 |
| | | 3 | **Auto** | The setting matches the program setting. |
| (2) | **Line2(0/1)** | Line2: This sets the scanning system. | | |
| | | 0 | **Interlace** | Interlace |
| | | 1 | **Progressive** | Progressive |
| | | 2 | **Auto** | The setting matches the program setting. |
| (3) | **Line3(0-2)** | Line3: This sets the aspect ratio. | | |
| | | 0 | **4:3** | 4:3 |
| | | 1 | **4:3 Letter Box** | 4:3 letter box |
| | | 2 | **16:9** | 16:9 |
| | | 3 | **Auto** | The setting matches the program setting. |

# 5.4 Composite output

The following video signals can be output as composite signals.

- NTSC-M、NTSC-J、NTSC-443
- PAL、PAL-M、PAL-Nc

CAUTION

- If the timing of the composite and Y/C signals (such as the period and sync width data) has been changed from that in the internal program, it may no longer be possible to draw the patterns on the monitor correctly.

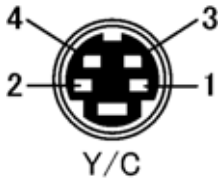
## 5.4.1 CVBS output

### 5.4.1.1 Connectors and pin assignments

| Connector | Signal |
|---|---|
| CVBS | Composite video |

## 5.4.2 Y/C (S-terminal) output

### 5.4.2.1 Connectors and pin assignments

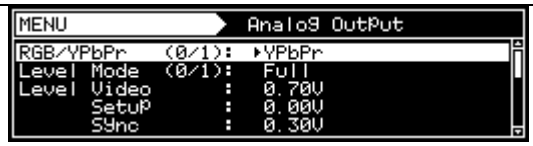
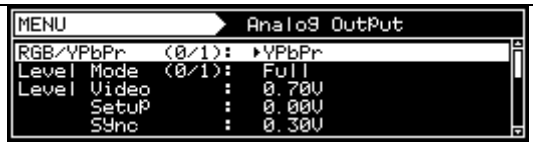



| Pin No. | Signal |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | Y |
| 4 | C |

### 5.4.2.2 Setting the ID signals

The Y/C signals can be used to identify the aspect ratio by the DC level superimposed onto the C signal.

**Setting procedure**

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU, or INC DEC, and then press SET. | |
| ② | Select **Output (TIM)** using or INC, DEC, and then press SET. | |
| ③ | Select **Analog** using or INC DEC, and then press SET. |  |
| ④ | Select **Y/C** using or INC DEC, and then press SET. |  |
| ⑤ | Select the **Aspect** using or INC, DEC, and then press SET. | |
| ⑥ | Select the parameters using or INC, DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F, (number keys), and then press SET. | Set the DC voltage of the C signal. |

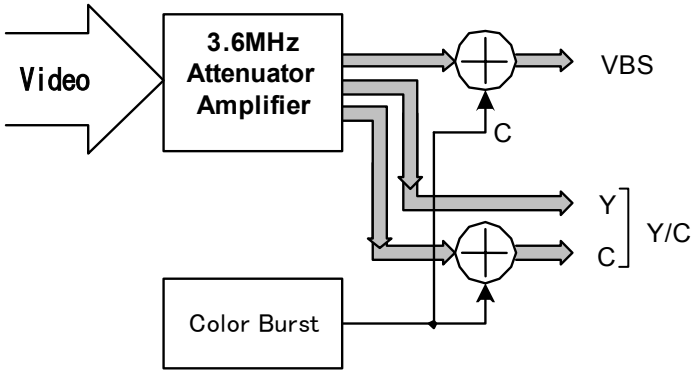
| | | |
|---|---|---|
| 0 | **4:3 Normal** | 4.3 (0 V) |
| 1 | **4:3 Letter Box** | 4:3 letter box (2.2 V) |
| 2 | **16:9 Squeeze** | 16:9 squeeze (5.0 V) |
| 3 | **Auto** | The setting matches the aspect ratio setting of the program. |

| | | |
|---|---|---|
| | **After completing the settings:**<br>MENU | Display returns to the initial screen. |

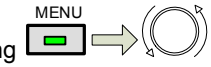
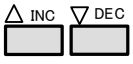
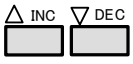
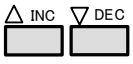
## 5.4.3 Filter settings

The filter for composite output can be set.

This setting is processed before the chrominance is added to the video signals so that the color burst is not affected.




**Setting procedure**

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU  or △ INC ▽ DEC  , and then press SET . | |
| ② | Select **General** using or △ INC ▽ DEC  , and then press SET . | |
| ③ | Select **TV-COMPOSITE Filter** using or △ INC ▽ DEC  , and then press SET . | |
| ④ | **Inputting the parameters**<br>Select the parameters using or △ INC ▽ DEC , and then press SET .<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET . | The **TV-COMPOSITE Filter** setting is used to enhance or smooth the edges.<br>0 **3.5dB gain** The edges are enhanced.<br>1 **1.0dB gain** Same as above<br>2 **-1.0dB** The edges are smoothed.<br>3 **-3.0dB** Same as above<br>4 **-7.0dB** Same as above (factory setting)<br>5 **-7.0dB** *1 Three pixels are smoothed in addition to the setting of 4. |

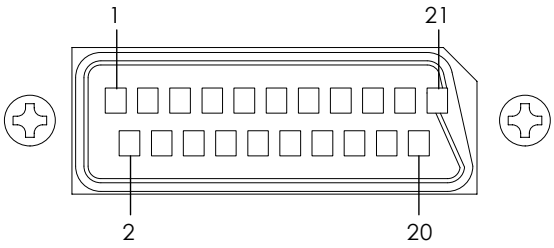
*** The filter settings are shared by the CVBS, Y/C (S-terminal) and SCART outputs.**

## 5.4.4 Functions superimposed over composite signals

Macrovision, Closed Caption, V-Chip, Teletext, WSS, and CGMS-A/ID-1 can be multiplexed with the composite signals. For details, refer to "**6. Functions Superimposed Over TV Signals**".

# 5.5 SCART output

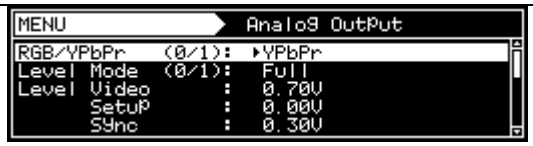
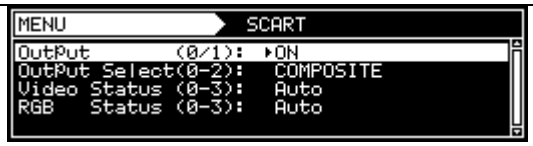
## 5.5.1 Connectors and pin assignments




| Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|
| 1 | Audio R output | 11 | Component G output |
| 2 | N.C. | 12 | N.C. |
| 3 | Audio L output | 13 | GND |
| 4 | GND | 14 | GND |
| 5 | GND | 15 | Component R output/C output |
| 6 | GND | 16 | RGB status |
| 7 | Component B output | 17 | GND |
| 8 | Video Status | 18 | GND |
| 9 | GND | 19 | Composite/Y output/CS |
| 10 | N.C. | 20 | N.C |
| | | 21 | GND |

## 5.5.2 SCART setting procedure

**SCART setting procedure**

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Output (TIM)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Analog** using or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select **SCART** using or △ INC ▽ DEC, and then press SET. |  |
| ⑤ | Select the items using or △ INC ▽ DEC, and then press SET.<br><br>**Inputting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details on the parameters, refer to "**SCART setting parameters**" below. |

**SCART setting parameters**

| | | | | |
|---|---|---|---|---|
| (1) | **Output(0/1)** | Set on or off for each channel here.<br>The same settings as the ones described in "**5.1.1 Setting the output interfaces to ON or OFF**" can also be used here. | | |
| | | 0 | **Off** | No output |
| | | 1 | **On** | Signal output |
| (2) | **Output Select(0-2)** | This sets the format of the video signals that are output from the SCART connector. | | |
| | | 0 | **COMPOSITE** | Composite signals are output. |
| | | 1 | **Y/C** | Y/C signals are output. |
| | | 2 | **RGB** | RGB signals are output. |
| (3) | **Video Status(0-3)** | This sets the video status signal that is output from the SCART connector. | | |
| | | 0 | **Auto** | The setting matches the program setting. |
| | | 1 | **4:3** | 4:3 (identified voltage: 12 V (9.5 to 12.0 V)) |
| | | 2 | **16:9** | 16:9 (identified voltage: 5 V (4.5 to 7.0 V)) |
| | | 3 | **No Signal** | No output (identified voltage: 0V (0.0 to 2.0 V)) |
| (4) | **RGB Status(0-3)** | This sets the RGB status signal that is output from the SCART connector. | | |
| | | 0 | **Auto** | The signal is set automatically by **Output Select**. |
| | | 1 | **VBS** | Composite or Y/C (identified voltage: 0 V) |
| | | 2 | **RGB** | RGB (identified voltage: 5 V) |
| | | 3 | **Fast Blanking** | This sets the output range of the fast blanking signal. |
| (5) | **Fast Blanking Area** | This sets the output range of the fast blanking signal. | | |
| | | **H** | The horizontal output range is set as a percentage of H-Disp.<br>Setting range: **0 to 100 [%]** | |
| | | **V** | The vertical output range is set as a percentage of V-Disp.<br>Setting range: **0 to 100 [%]** | |
| (6) | **Audio Out1ch(0/1)** | Set on or off for each channel here. | | |
| | | 0 | **OFF** | No output |
| | | 1 | **ON** | Signal output |
| (7) | **Audio Out2ch(0/1)** | This setting is the same as for the Audio Out1ch setting. | | |

### 5.5.3 Filter settings

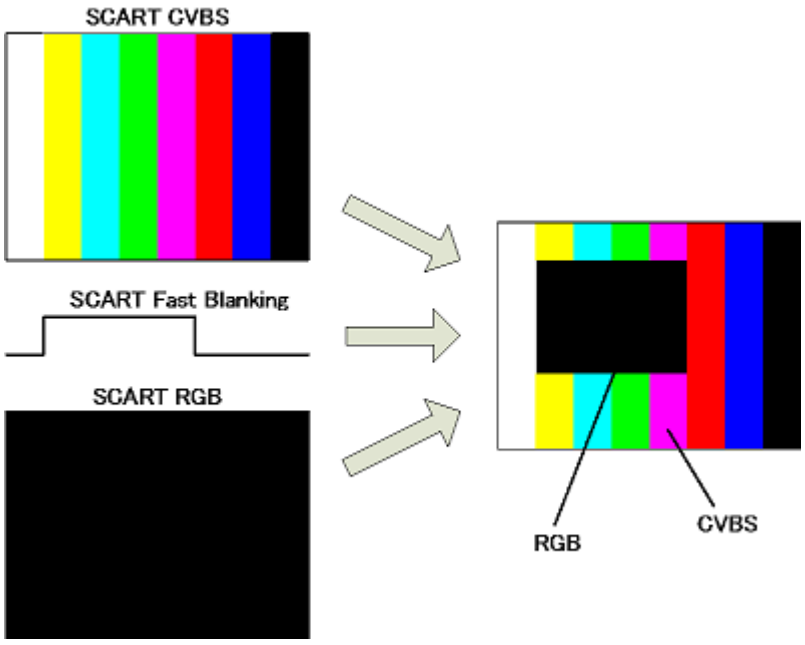
The amount of attenuation (or gain) in the 3.6 MHz frequency of the SCART output signals can be set.
For details, refer to "**5.4.3 Filter settings**".

### 5.5.4 Functions superimposed over SCART output

Macrovision, Closed Caption, V-Chip, Teletext, WSS, and CGMS-A/ID-1 can be multiplexed with the composite signals. For details, refer to "6. **Functions Superimposed Over TV Signals**".

### 5.5.5 Fast blanking signal

The fast blanking signal is a control signal for selecting the composite output and RGB output video signals that are output from the 16-pin SCART connector, and displaying them.
By using fast blanking, displays can be shown as with on-screen displays.
When the fast blanking signal level is low (0 V), the CVBS video signals are displayed on the monitor; when it is high (5 V), the RGB video signals are displayed.




CAUTION

- With the VG-882-A, different images cannot be output from the composite (CVBS, Y/C) and RGB output. If CVBS or Y/C has been set for Output Select among the SCART settings, a black-filled image is output to the RGB output of the SCART connector. If RGB has been set for Output Select the same image as that for composite is output.

### 5.5.6 Audio settings

For the advanced setting procedure, refer to "**5.6 Analog audio**".

# 5.6 Analog audio

## 5.6.1 Connectors and output signals

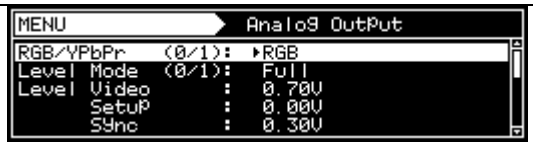
| Connector | Signal |
|---|---|
| R | Audio R output |
| L | Audio L output |

## 5.6.2 Analog audio

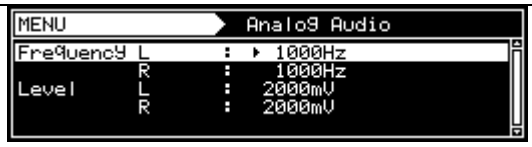
Analog audio can be output.
The operation procedure is described below.

a) Enable the analog audio.
b) Set the audio source, frequency, and level.

**a) Enabling the analog audio**

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Output (TIM)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Analog** using or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select **AUDIO** using or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Select **Output (TIM)** using or △ INC ▽ DEC, and then press SET. | The analog audio output is enabled or disabled.<br>0 **OFF** Disabled<br>1 **ON** Enabled |

**b) Setting the audio source, frequency, and level**

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Audio (TIM)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Analog Audio** using or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select the items using or △ INC ▽ DEC, and then press SET. | The frequency and level are set here. |

| | |
|---|---|
| **Frequency L** | The left channel frequency is set.<br>**Setting range:**<br>**Sampling frequency**<br>**44.1 or 48 KHz: 20 Hz to 20,000 KHz**<br>**32 KHz: 20 Hz to 14,000 KHz**<br>**(100 Hz Step)** |
| **Frequency R** | The right channel frequency is set.<br>**Setting range:**<br>**Sampling frequency**<br>**44.1 or 48 KHz: 20 Hz to 20,000 KHz**<br>**32 KHz: 20 Hz to 14,000 KHz**<br>**(100 Hz Step)** |
| **Level L** | The left channel level is set.<br>**Setting range: 0 to 4000 [mV]**<br>**(50 mV Step)** |
| **Level R** | The right channel level is set.<br>**Setting range: 0 to 4000 [mV]**<br>**(50 mV Step)** |

**Inputting the parameters**

Select the parameters using or △ INC ▽ DEC, and then press SET.

Alternatively:

Select the parameters using 0/STATUS to 9/F (number keys), and then press SET.

CAUTION

- The sampling frequency of analog audio is shared with that of digital audio. Therefore, the sampling frequency is switched at the same time the sampling frequency of HDMI output is changed. The analog audio may experience a temporary drop in sound at that time.

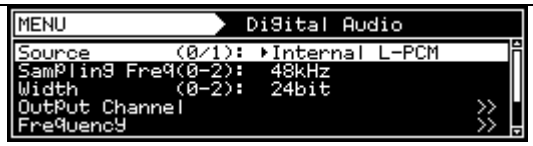
# 5.7 Digital audio

## 5.7.1 Digital audio

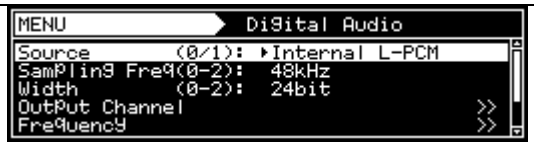
This is audio that is superimposed over HDMI output. The only supported audio source is L-PCM that is generated internally by the generator.

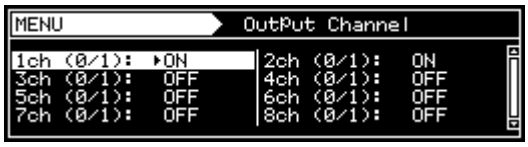
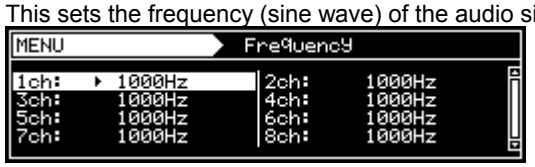
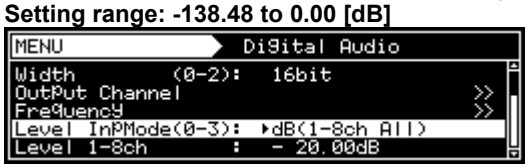
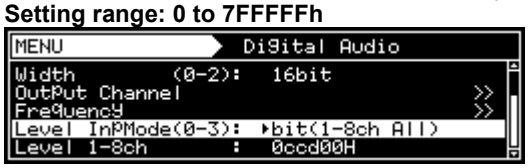
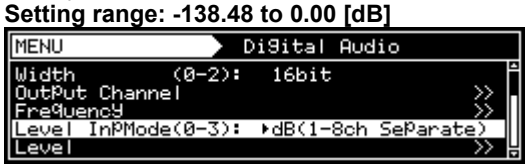
Set the audio source, frequency, and output level.

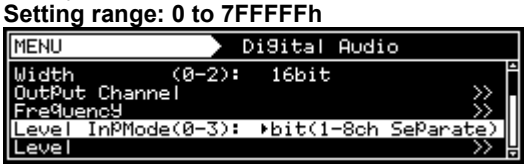
**Operation procedure**

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Audio (TIM)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Digital Audio** using or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select **Source** using or △ INC ▽ DEC, and then press SET.<br><br>**Inputting the parameters**<br><br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br><br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | Sine waves are output via the internal L-PCM as the “Source” sound source.<br><br>For details on the settings, refer to “**Int L-PCM setting parameters**” below. |

**Int. L-PCM setting parameters**

| | | | | |
|---|---|---|---|---|
| | Setting menu display |  | | |
| (1) | **Sampling Frequency (0-2)** | This sets the sampling frequency. | | |
| | | 0 | **32KHz** | This outputs the signals at a 32-kHz sampling frequency. |
| | | 1 | **44.1KHz** | This outputs the signals at a 44.1-kHz sampling frequency. |
| | | 2 | **48KHz** | This outputs the signals at a 48-kHz sampling frequency. |
| (2) | **Width (0-2)** | This sets the bit length of the audio data. | | |
| | | 0 | **16BIT** | The audio data is output with 16 bits. |
| | | 1 | **20BIT** | The audio data is output with 20 bits. |
| | | 2 | **24BIT** | The audio data is output with 24 bits. |

<table>
<tr><td>(3)</td><td>Output Channel</td><td colspan="3">This sets whether to set ON or OFF for channels 1 to 8 of the embedded audio.<br> 
</td></tr>
<tr><td></td><td></td><td>0</td><td>OFF</td><td>No output</td></tr>
<tr><td></td><td></td><td>1</td><td>ON</td><td>Signal output</td></tr>
<tr><td>(4)</td><td>Frequency</td><td colspan="3">This sets the frequency (sine wave) of the audio signals to be output.<br> 
</td></tr>
<tr><td></td><td></td><td>100-20000（100-14000）</td><td colspan="2">・When the sampling frequency is 32 kHz:<br>The output frequency can be set from 100 Hz to 14 kHz.<br>・When the sampling frequency is 44.1 or 48 kHz:<br>The output frequency can be set from 100 Hz to 20 kHz.</td></tr>
<tr><td>(5)</td><td>Level InpMode</td><td colspan="3">This sets the level input method.</td></tr>
<tr><td></td><td></td><td>0</td><td>dB(1-8ch All)</td><td>This sets all the channels 1 to 8 as a dB display.<br>Setting range: -138.48 to 0.00 [dB]<br> 
</td></tr>
<tr><td></td><td></td><td>1</td><td>BIT(1-8ch All)</td><td>This sets all the channels 1 to 8 as a bit display.<br>Setting range: 0 to 7FFFFFh<br> 
</td></tr>
<tr><td></td><td></td><td>2</td><td>db(1-8ch Separate)</td><td>This sets channels 1 to 8 separately as a dB display.<br>Setting range: -138.48 to 0.00 [dB]<br> 
<br>Select the level here.<br>
</td></tr>
</table>

| | | | | |
|---|---|---|---|---|
| | | 3 | **bit(1-8ch Separate)** | This sets channels 1 to 8 separately as a bit display.<br>**Setting range: 0 to 7FFFFFh**<br>  <br><br>Select the level here.<br> <br> |

# 6 Functions Superimposed Over TV Signals

Teletext broadcasts, data multiplexed broadcasts, copy prevention information, and other data are superimposed in the vertical blanking interval (VBI) of the NTSC, PAL and SECAM standard TV signals, and transmitted.
The VG-882-A supports the following functions.

(1) Macrovision (optional)
(2) Closed caption/V-Chip
(3) Teletext
(4) WSS
(5) CGMS-A/ID-1

The standard TV signals and supported functions are summarized in the table below.

| | Macrovision | Closed caption V-Chip | Teletext | WSS | CGMS-A/ ID-1 |
|---|---|---|---|---|---|
| NTSC-J | ○ | ○ | − | − | ○ |
| NTSC-M | ○ | ○ | − | − | ○ |
| NTSC-443 | ○ | ○ | − | − | ○ |
| PAL-M | ○ | ○ | − | − | ○ |
| PAL(-BDGHIK) | ○ | ○ | ○ | ○ | − |
| PAL-Nc | ○ | ○ | − | ○ | − |

CAUTION

- The Macrovision, closed caption (V-Chip), teletext, WSS, and CGMS-A/ID-1 functions cannot be executed at the same time. Macrovision has priority.

# 6.1 Macrovision

## 6.1.1 Description and specifications

**■ What is “Macrovision”?**

Macrovision is a copy prevention system developed by Macrovision Corporation.
Widely used by video sources such as VHS and DVD-Video on the market and by satellite broadcasts, the system ensures that, by causing the automatic gain control (AGC) of the video decks to malfunction, users will not be able to record properly the video output sources protected by the system.

The AGC circuit is designed to adjust the gain of the input signals automatically and maintain the appropriate sensitivity, and almost all consumer-use VCRs now feature it. It serves to make dark images a little brighter and excessively light images darker and keep them this way.

While keeping the luminance and chrominance signal components of the video signals unchanged, Macrovision’s copy prevention signals cause the AGC to malfunction by mixing signals with non-standard levels in the vertical blanking interval. This is why the brightness of the images will fluctuate even when the images are recorded. These signals also have the effect of causing trouble for the sync signals and disturbances in the images.

The disturbances caused ensure that content is unwatchable even when it has been copied.

**■ What does the “color stripe” function do?**

This function is part of the Macrovision standard, and it provides color stripes to overlap with the regular Macrovision signals.

It constitutes a method of superimposing the modulated color burst signal onto the video signals, and it is also referred to as a means of color burst copy prevention.

The color stripe function inserts thin horizontal lines into the copied images and, like the Macrovision system, it makes the images unwatchable.

* The color stripes are provided only in the Type 2 and 3 modes of the NTSC-M and J systems.

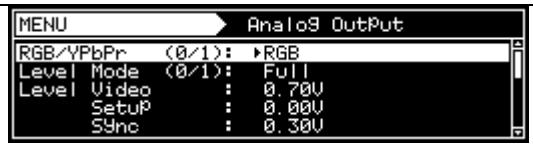
**■ Macrovision specifications**

Macrovision supports the TV signals of the following systems.
Its signals are superimposed onto the composite signals and Y/C signals.

- NTSC-M、NTSC-J、NTSC-443
- PAL、PAL-M、PAL-Nc

- Macrovision is optional. Contact your dealer or the Astrodesign Sales Department.
- Macrovision signals have different effects depending on the type of VHS or DVD player used. When using the system, be sure to check the terms and conditions of the agreement with Macrovision Corporation.

## 6.1.2 Setting procedure

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Output (TIM)** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Analog** using ◯ or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select **VBI Function** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Select **Macrovision** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑥ | Select **Mode** using ◯ or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select using 0/STATUS to 9/F (number keys), and then press SET. | The selection options for Mode differ depending on the TV signals.<br>(OFF is set for any timing format not listed below.) |

| | |
|---|---|
| NTSC-M | |
| 0 | OFF |
| 1 | Type1 ( AGC only ) |
| 2 | Type2 ( AGC + 2Line Colorstripe ) |
| 3 | Type3 ( AGC + 4Line Colorstripe ) |
| 4 | VHS USA |
| 5 | VHS US obs. |
| NTSC-J | |
| 0 | OFF |
| 1 | Type1 ( AGC only ) |
| 2 | Type2 ( AGC + 2Line Colorstripe ) |
| 3 | Type3 ( AGC + 4Line Colorstripe ) |
| 4 | VHS Japan1 |
| 5 | VHS Japan2 |
| NTSC-443, PAL-M | |
| 0 | OFF |
| 1 | Type1,2,3 ( AGC only ) |
| PAL, PAL-Nc | |
| 0 | OFF |
| 1 | Type1,2,3 ( AGC only ) |
| 2 | VHS |

| | | |
|---|---|---|
| | MENU | Display returns to the initial screen. |

# 6.2 Closed caption/V-Chip

## 6.2.1 Description and specifications

■ **What is “closed caption (CC)”?**

Closed captioning was developed in the United States, and it provides broadcasts with subtitles for the hearing impaired so that people who are deaf or hard of hearing can enjoy movies and news programs.
The captions are “closed” in the sense that they are not displayed on the screen during normal playback. Conversely, the Japanese-language subtitles and other such characters used with video content that is “burned into” the images from the start are referred to as “open captions.”
Although closed captioning was originally developed as a technology for the hearing impaired, it is currently attracting the attention of educators and language learners as a tool which helps develop “listening.”

The CC subtitle data is superimposed onto line 21 (first field) and line 284 (second field) of the NTSC output signals, and output. The subtitle data has two modes, captions and text. Another available service is the Extended Data Service (EDS), which transmits titles, ratings and other program information using line 284 (second field). The V-Chip described below uses the EDS function.

A total of 32 characters can be displayed per line by CC. There are 15 lines, but the maximum number of lines is limited to 4 in the caption mode (CC1 to 4). All 15 lines can be displayed in the text mode (T1 to 4).

■ **What is the “V-Chip”?**

The V-Chip refers to a semiconductor chip that blocks out TV programs containing violence and sexual situations. “V” refers to violence, and the viewing of programs is blocked out according to the ratings that are categorized by the extremity of the program content. Once the ratings are set in a receiver (TV set) that incorporates the V-Chip function, the rating information of EDS is decoded, and whether the programs are to be output to the screen is automatically determined.

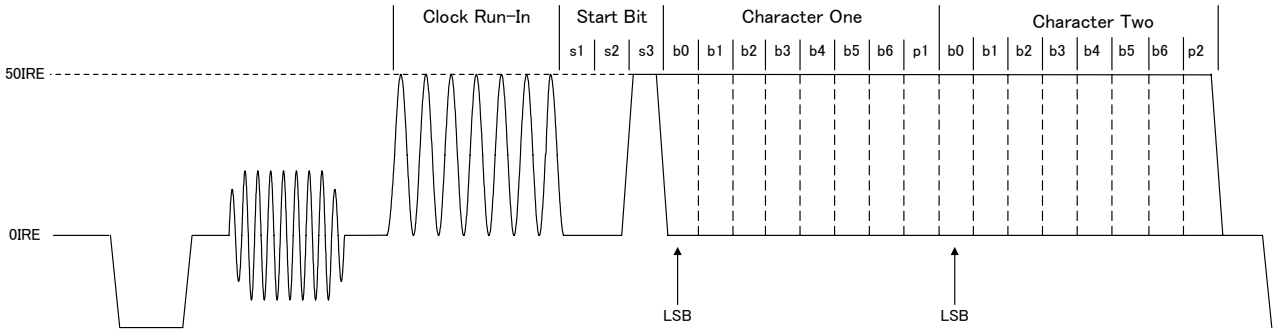
■ **Specifications of closed caption/V-Chip**

Closed caption/V-Chip supports the TV signals of the following systems.
Closed caption/V-Chip is superimposed onto the composite signals and Y/C signals.

- NTSC-M, NTSC-J, NTSC-443
- PAL-60, PAL, PAL-M, PAL-Nc

* However, in a 625-line system (PAL, PAL-N, PAL-Nc), the caption data is superimposed onto 23 lines (335 lines).

The closed caption/V-Chip waveform is shown below. After the color burst comes a sine wave known as Clock Run-In and then the start bit. The start bit is always “001.” Two bytes of data (Char1, Char2) are sent for each line. Char1 and Char2 are decoded from LSB, and an odd parity is usually added to MSB (bit 8).




Closed Caption / V-Chip (21Line System)

## 6.2.2 Closed caption settings

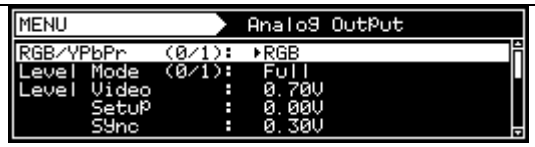
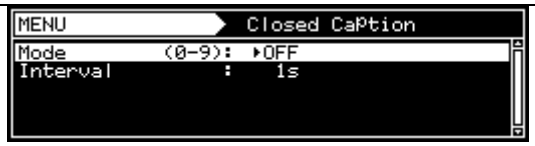
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → ◯ or △INC ▽DEC, and then press SET. | |
| ② | Select **Output (TIM)** using ◯ or △INC ▽DEC, and then press SET. | |
| ③ | Select **Analog** using ◯ or △INC ▽DEC, and then press SET. |  |
| ④ | Select **VBI Function** using ◯ or △INC ▽DEC, and then press SET. | |
| ⑤ | Select **Closed Caption** using ◯ or △INC ▽DEC, and then press SET. |  |
| ⑥ | **Selecting the setting items from the table**<br>Select the parameters using SET → ◯ or △INC ▽DEC, and then press SET. | For details on the setting items and parameters, refer to "**Table of closed caption setting items**" below. |
| ⑦ | **Setting the parameters**<br>Select the parameters using ◯ or △INC ▽DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | |
| | **After completing the settings:**<br>MENU | Display returns to the initial screen. |

**Table of closed caption setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Mode(0-9)** | The **mode** is set here. | | |
| | | 0 | **OFF** | The captions are set to OFF. |
| | | 1 | **CC1** | Closed caption mode 1 is selected here. |
| | | 2 | **CC2** | Closed caption mode 2 is selected here. |
| | | 3 | **CC3** | Closed caption mode 3 is selected here. |
| | | 4 | **CC4** | Closed caption mode 4 is selected here. |
| | | 5 | **T1** | Text data mode 1 is selected here. |
| | | 6 | **T2** | Text data mode 2 is selected here. |
| | | 7 | **T3** | Text data mode 3 is selected here. |
| | | 8 | **T4** | Text data mode 4 is selected here. |
| | | 9 | **USER Data** | The user data is selected here.<br>Up to 20 user data can be registered using SP-8870. |
| (2) | **Interval** | 0-60 | **Interval** | The interval at which the closed caption data is transmitted is set. (in 1-second increments) |
| (3) | **USER Data No.** | 1-20 | | The user data number is set here.<br>This is valid when **USER Data** has been selected as the **Mode** setting in (1) above. |

Listed below are the types of closed caption services available.

**CC1** - Primary Synchronous Caption Service (caption service for primary language)
**CC2** - Special Non-Synchronous Use Caption (service that does not need to be synchronized with the sound, etc.)
**CC3** - Secondary Synchronous Caption Service (caption service for secondary language)
**CC4** - Special Non-Synchronous Use Caption (service that does not need to be synchronized with the sound, etc.)
**T1** - First Text service (text service)
**T2** - Second Text service (text service)
**T3** - Third Text service (text service)
**T4** - Fourth Text service (text service)

## ■ The content of closed caption internal data (1/3)

| Service | Caption style, line, color, optional settings, etc. | Displayable characters |
|---|---|---|
| CC1～<br>CC4 | Roll-up2<br>ROW2<br>Background: Black, not transparent<br>Text: White | Primary Synchronous<br>Caption Service -- CC1 (CC1)<br><br>Secondary Synchronous<br>Caption Service -- CC2 (CC2)<br><br>Special Non-Synchronous<br>Use Captions -- CC3 (CC3)<br><br>Special Non-Synchronous<br>Use Captions -- CC4 (CC4) |
| | Roll-up3<br>ROW10<br>Background: Blue, not transparent<br>Text: Yellow | Roll-up Style<br>characters are always<br>displayed immediately.<br>Each time a Carriage Return is<br>received,<br>the text is scrolled up<br>one row. |
| | Roll-up4<br>ROW15, indent<br>Background: Cyan, not transparent<br>Text: Red | Standerd characters<br>0123456789<br>ABCDEFGHIJ<br>áàâçéèêíîÑñóôúû<br>!,.;:7”#% &@/()<br>[]+-÷<=>?<br>Music note, solid block, Transparent space,solid block, Music note, solid block, Transparent space |
| | Pop-on<br>ROW1<br>ROW2<br>ROW3<br>Background: Red, semi-transparent<br>Text: Cyan | Pop-on Style<br>Caption data are loaded<br>into a non-displayed memory. |
| | Pop-on<br>ROW4<br>ROW5<br>ROW6<br>Background: Green, semi-transparent<br>Text: Blue, flashing | End of Caption command (EOC)<br>“flips” displayed and<br>non displayed memory. |
| | Pop-on<br>ROW7, indent<br>ROW8, indent<br>ROW9, indent<br>Background: Magenta, not transparent<br>Text: Green, italic | ABCDEFGHIJ<br>0123456789<br>Å å Ø ø ┌┐ └┘ |

## ■ The content of closed caption internal data (2/3)

| Service | Caption style, line, color, optional settings, etc. | Displayable characters |
|---|---|---|
| CC1～<br>CC4 | Pop-on<br>ROW12, indent<br>ROW13, indent<br>ROW14, indent<br>ROW15, indent<br>Background: White, not transparent<br>Text: Red, underlined | <br>ÁÉÓÚÜü, opening single quote, inverted exclamation mark<br>ÀÂÇÈÊËëÎÏïÔÙùÛ«»<br>ÃãÍÌìÒòÕõ{}＼^_\|~<br>ÄäÖöß\¤\| |
| | Paint-on<br>ROW1<br>ROW3<br>ROW4<br>ROW6<br>ROW7<br>ROW9<br>Background: Yellow, semi-transparent<br>Text: Blue | <br>Paint-on Style<br>Characters are always<br>displayed immediately.<br>Characters on next row<br>will be erased by Backspase.<br>ABCDEFGH<br>(A～H is deleted by Backspase) |
| | Paint-on<br>ROW5<br>ROW6<br>ROW7<br>ROW8<br>ROW9<br>ROW10<br>ROW12, indent<br>ROW14, indent<br>Background: Yellow, semi-transparent<br>Text: Blue | <br>Once the cursor reaches<br>the 32nd column position on<br>any row, all subsequent<br>characters will be displayed<br>In thet column replaceing<br>any previous character.<br>ABCDEFGHIJKLMNOPQRSTUVWXYZ (S～Y are replaced by Z)<br>Abcdefghijklmnopqrstuvwxyz (n～y are replaced by z) |
| T1 | -- | First Text Service -- T1<br>Text Mode is a data service,<br>generally not program related,<br>which may be transmitted using<br>either field of line21.<br>Text Mode data are always<br>displayed as soon as they are<br>received and are intended to be<br>displayed in a manner which<br>isolates them from the video<br>program used to transmit<br>the data. Once the display<br>window is filled these data are<br>always scrolled upward through<br>the display window provided by<br>the decoder. |
| T2 | -- | Second Text Service -- T2<br>ABCDEFGHIJKLMNOPQRSTUVWXYZ<br>abcdefghijklmnopqrstuvwxyz<br>012345678901234567890<br>!"#$%&'()á+,-./<br>:;<=>?@[é]íóú<br>*.–©℠•□”\ |

## ■ The content of closed caption internal data (3/3)

| Service | Caption style, line, color, optional settings, etc. | Displayable characters |
|---|---|---|
| T3 | -- | Third Text Service -- T3<br>A Text Mode may be used that consists of data formatted to fill a box which in height is not less than 7 rows and not more than 15 rows (all of which should be contiguous), and in width is not less than 32 columns. Text should be displayed over a solid background to isolate it from the unrelated program video. Each row of text contains maximum of 32 characters. |
| T4 | -- | Fourth Text Service -- T4<br>ABCDEFGHIJKLMNOPQRSTUVWXYZ<br>abcdefghijklmnopqrstuvwxyz<br>01234567890123456789<br>!"#$%&'()á+,-./<br>:;<=>?@[é]íóú<br>*.–©℠•□”\ |

## 6.2.3 V-Chip settings

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → or INC DEC, and then press SET. | |
| ② | Select **Output (TIM)** using or INC DEC, and then press SET. | |
| ③ | Select **VBI Function** using or INC DEC, and then press SET. | |
| ④ | Select **V-Chip** using or INC DEC, and then press SET. | |
| ⑤ | **Selecting the setting items from the table**<br>Select the parameters using SET →<br>or INC DEC, and then press SET. | For details on the setting items and parameters, refer to "**Table of V-Chip setting items**" below. |
| ⑥ | **Setting the parameters**<br>Select the parameters using or INC DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | |
| | **After completing the settings:**<br>MENU | Display returns to the initial screen. |

**Table of V-Chip setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **System(0-4)** | The rating system is selected here. | | |
| | | 0 | **OFF** | The V-Chip is set to OFF here. |
| | | 1 | **MPAA** | MPAA is set here. |
| | | 2 | **U.S.TV** | U.S. TV is set here. |
| | | 3 | **English** | Canadian English is set here. |
| | | 4 | **French** | Canadian French is set here. |

Listed below are the names of the rating systems and a brief description of each.

**MPAA：Motion Picture Association of America**

This organization was set up in order to promote the spread of American movies. It is active in many fields such as promoting exports overseas and cracking down on pirated movies. On the U.S. domestic front, it helps viewers exercise voluntary controls by establishing a rating system for violence, sexual content and discriminatory content. Its rating standards are strict, and it has screening targets images and language that would hardly raise an eyebrow in Japan.

**U.S.TV：U.S. TV Parental Guideline Rating System**

This rating system is incorporated in ordinary TV sets installed in American homes.

**English：Canadian English Language Rating System**

This rating system targets Canadian English.

**French：Canadian French Language Rating System**

This rating system targets Canadian French.

| | | | | |
|---|---|---|---|---|
| (2) | **MPAA** | These ratings, which apply when **MPAA** has been selected as the **System** setting in (1) above, are set here. | | |
| | | 0 | **G** | “General Audience” is set as the MPAA rating. |
| | | 1 | **PG** | “Parental Guidance” is set as the MPAA rating. |
| | | 2 | **PG-13** | “Parents Strongly Cautioned” is set as the MPAA rating. |
| | | 3 | **R** | “Restricted” is set as the MPAA rating. |
| | | 4 | **NC-17** | “No One 17 and Under Admitted” is set as the MPAA rating. |
| | | 5 | **X** | “Adult Movie” is set as the MPAA rating. |
| | | 6 | **Not Rated** | “Not Submitted For MPAA Review” is set as the MPAA rating. |
| | | 7 | **N/A** | “N/A” is set as the MPAA rating. |

Listed below are the names and descriptions of the MPAA ratings.

**G：General Audience**

For general audiences.

**PG：Parental Guidance**

Contains scenes unsuitable for young children.

**PG-13：Parents Strongly Cautioned**

Contains scenes unsuitable for children aged 13 and under.

**R：Restricted**

Permission of a parent or guardian required for children up to 17 years of age.

**NC-17：No One 17 and Under Admitted**

Cannot be viewed by anyone aged 17 years and under.

**X：Adult Movie**

For adults only.

**Not Rated**

Not Submitted For MPAA Review

**N/A**

No applicable restrictions

| | | | | |
|---|---|---|---|---|
| (3) | **U.S.TV** | These ratings, which apply when **U.S.TV** has been selected as the **System** setting in (1) above, are set here. | | |
| | | 0 | **TV-Y** | “All children” is set as the U.S. TV rating. |
| | | 1 | **TV-Y7** | “Directed to older children” is set as the U.S. TV rating. |
| | | 2 | **TV-G** | “General Audience” is set as the U.S. TV rating. |
| | | 3 | **TV-PG** | “Parental Guidance Suggested” is set as the U.S. TV rating. |
| | | 4 | **TV-14** | “Parents Strongly Cautioned” is set as the U.S. TV rating. |
| | | 5 | **TV-MA** | “Mature Audience Only” is set as the U.S. TV rating. |
| | | 6 | **Not Rated 1** | “Not Rated” is set as the U.S. TV rating. (Code = 000) |
| | | 7 | **Not Rated 2** | “Not Rated” is set as the U.S. TV rating. (Code = 111) |
| (4) | **USTV Extension** | The extension bits for U.S. TV are set.<br>The bits which can be set differ depending on the U.S. TV ratings.<br>For details of the pattern types, refer to “**U.S. TV rating system extension bit settings**”. | | |

Listed below are the names and descriptions of the U.S. TV ratings.

**TV-Y：All children**

Suitable for all children.

**TV-Y7：Directed to older children**

Suitable for children aged 7 and above.

**TV-G：General Audience**

Suitable for audiences of all ages (must not contain violent scenes, objectionable language or sexual content).

**TV-PG：Parental Guidance Suggested**

Contains scenes involving some violence and sexual content unsuitable for young children or situations that may induce foul language or incite delinquency.

**TV-14：Parents Strongly Cautioned**

Contains scenes involving violence and sexual content unsuitable for children aged 14 or below or situations that may induce foul language or incite delinquency.

**TV-MA：Mature Audience Only**

For adults only; programs with this rating are hardly ever broadcast.

**Not Rated1/2**

No applicable restrictions

**[U.S. TV rating system extension bit settings]**

| | FV | V | S | L | D |
|---|---|---|---|---|---|
| **TV-Y** | Cannot be set | | | | |
| **TV-Y7** | 0:- / 1:* | Cannot be set | | | |
| **TV-G** | Cannot be set | | | | |
| **TV-PG** | Cannot be set | 0:- / 1:* | 0:- / 1:* | 0:- / 1:* | 0:- / 1:* |
| **TV-14** | Cannot be set | 0:- / 1:* | 0:- / 1:* | 0:- / 1:* | 0:- / 1:* |
| **TV-MA** | Cannot be set | 0:- / 1:* | 0:- / 1:* | 0:- / 1:* | Cannot be set |
| **Not Rated 1** | Cannot be set | | | | |
| **Not Rated 2** | Cannot be set | | | | |

* "-" denotes OFF, and "*" ON.

Listed below are the names of the U.S. TV rating extension service ratings and a description of each.

**FV : Fantasy Violence**
Acts of fantasy violence = violence in animated features and comics.

**V : Violence**
Violence

**S : Sexual Situations**
Sexual content

**L : Adult Language**
Foul language

**D : Sexually Suggestive Dialog**
Sexually suggestive dialog

| | | | | |
|---|---|---|---|---|
| (5) | **English** | **These ratings, which apply when English has been selected as the System** setting in (1) above, are set here. | | |
| | | 0 | **E** | "Exempt" is set as the English rating. |
| | | 1 | **C** | "Children" is set as the English rating. |
| | | 2 | **C8+** | "Children eight years and older" is set as the English rating. |
| | | 3 | **G** | "General Programming, suitable for all audiences" is set as the English rating. |
| | | 4 | **PG** | "Parental Guidance" is set as the English rating. |
| | | 5 | **14+** | "Viewers 14 years and older" is set as the English rating. |
| | | 6 | **18+** | "Adult Programming" is set as the English rating. |

Listed below are the names and descriptions of the Canadian English ratings.

**E : Exempt**
No age restrictions apply.

**C : Children**
Programming may be viewed by all children.

**C8+ : Children eight years and older**
Programming may be viewed by children aged eight and above.

**G : General Programming, suitable for all audiences**
General programming

**PG : Parental Guidance**
Permission of a parent is required to view programming.

**14+ : Viewers 14 years and older**
Programming may be viewed by children 14 years and older.

**18+ : Adult Programming**
Programming for adults only.

| | | | | |
|---|---|---|---|---|
| (6) | **French** | These ratings, which apply when **French** has been selected as the **System** setting in (1) above, are set here. | | |
| | | 0 | **E** | “Exempt” is set as the French rating. |
| | | 1 | **G** | “General” is set as the French rating. |
| | | 2 | **8ans+** | “Not recommended for young children” is set as the French rating. |
| | | 3 | **13ans+** | “Programming may not be suitable for children under 13” is set as the French rating. |
| | | 4 | **16ans+** | “Programming is not be suitable for children under 16” is set as the French rating. |
| | | 5 | **18ans+** | “Programming restricted to adults” is set as the French rating. |

Listed below are the names and descriptions of the Canadian French ratings.

**E : Exempt**
No age restrictions apply.

**G : General**
General programming

**8ans+ : Not recommended for young children**
Programming unsuitable for young children

**13ans+ : Programming may not be suitable for children under 13**
Programming unsuitable for children aged 13 and under

**16ans+ : Programming is not suitable for children under 16**
Programming unsuitable for children aged 16 and under

**18ans+ : Programming restricted to adults**
Programming for adults only.

| | | | | |
|---|---|---|---|---|
| (7) | **Interval** | 0-60 | **Interval** | The interval at which the V-Chip data is transmitted is set. (in 1-second increments) |

# 6.3 Teletext

## 6.3.1 Description and specifications

**■ What is “Teletext”?**

Teletext is the name of a system used to send still picture program data of text and graphics after multiplexing it in the vertical sync blanking interval of the TV signals. Programs broadcast in Teletext include subtitled broadcasts, news broadcasts, weather forecasts and stock market information. Teletext has achieved a high penetration rate in various countries in Europe and Southeast Asia where the 625/50i system is used.

With Teletext, a total of 40 characters × 25 lines can be contained on a page (per screen), and between 100 and 899 pages of information can be displayed.

**■ Teletext specifications**

Teletext supports the following TV signals.

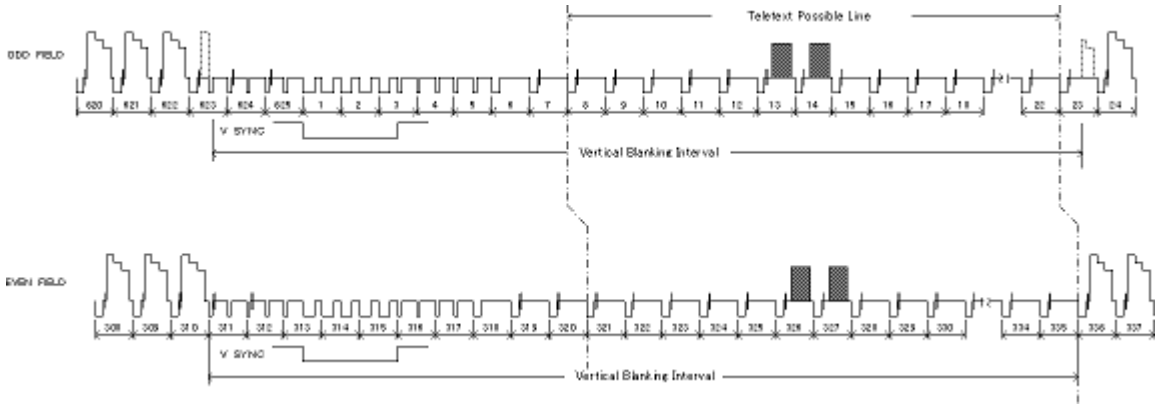
Teletext is superimposed onto the composite signals and Y/C signals.

・PAL (but not PAL-Nc)

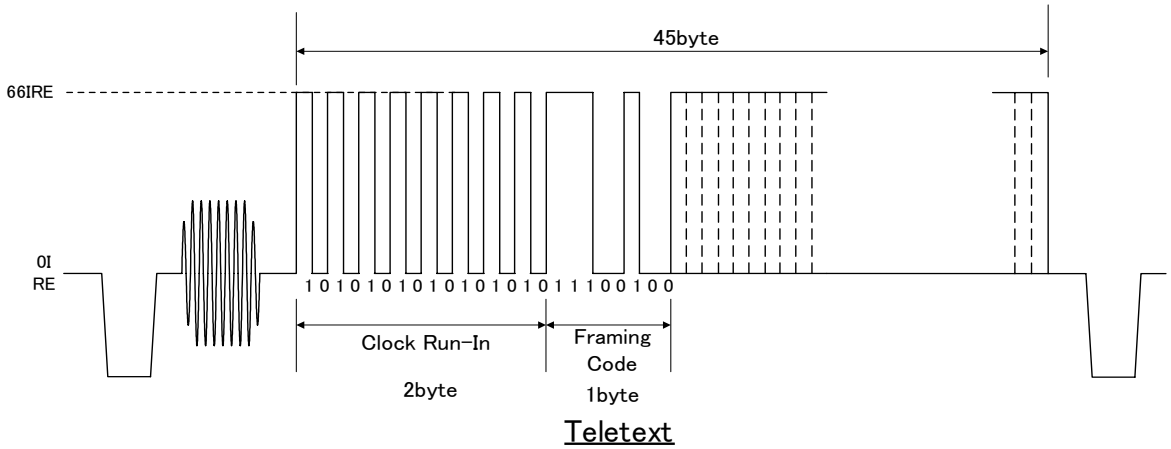
The vertical sync blanking interval (VBI) and Teletext waveforms are shown below.

The Teletext data can be output in lines 8 to 22 (first field) and lines 321 to 335 (second filed) in the vertical sync blanking interval of the PAL signals.

A total of 45 bytes consisting of the Clock Run-In, Framing Code and data bytes (42 bytes) are superimposed in one line.




**VBI waveforms**




**Teletext waveforms**

## 6.3.2 Setting procedure

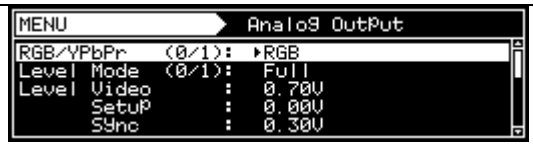
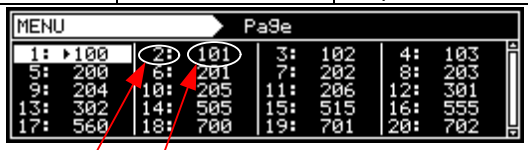
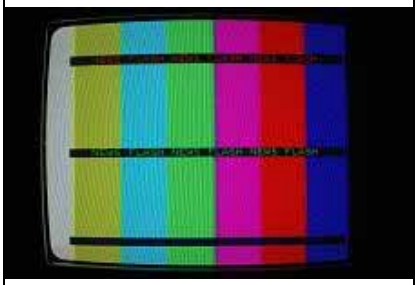
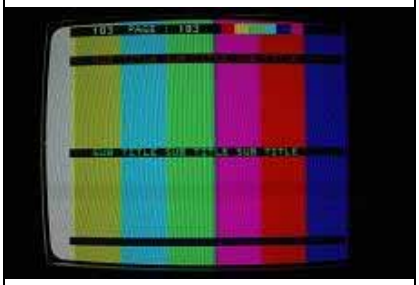
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → ◎ or △INC ▽DEC, and then press SET. | |
| ② | Select **Output (TIM)** using ◎ or △INC ▽DEC, and then press SET. | |
| ③ | Select **Analog** using ◎ or △INC ▽DEC, and then press SET. |  |
| ④ | Select **VBI Function** using ◎ or △INC ▽DEC, and then press SET. | |
| ⑤ | Select the **Teletext** using ◎ or △INC ▽DEC, and then press SET. | |
| ⑥ | **Selecting the setting items from the table**<br>Select the parameters using SET → ◎ or △INC ▽DEC, and then press SET. | For details on the setting items and parameters, refer to "**Table of teletext setting items**" below. |
| ⑦ | **Setting the parameters**<br>Select the parameters using ◎ or △INC ▽DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | |
| | **After completing the settings:**<br>MENU | Display returns to the initial screen. |

**Table of teletext setting items**

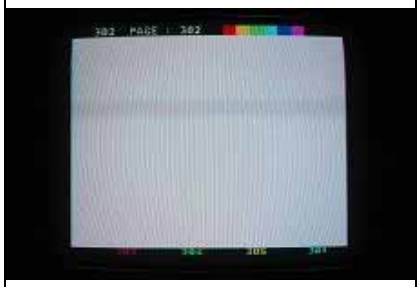
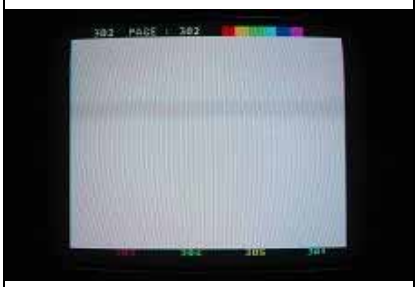
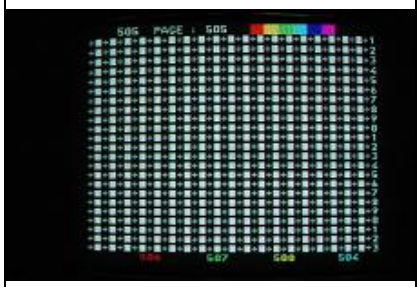
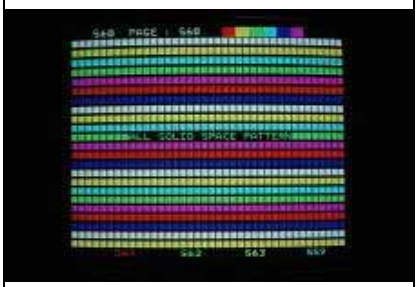
<table>
<tr><td>(1)</td><td>Mode(0-2)</td><td colspan="3">The Teletext operation mode is selected here.</td></tr>
<tr><td rowspan="3"></td><td rowspan="3"></td><td>0</td><td>Off</td><td>Teletext off</td></tr>
<tr><td>1</td><td>Default</td><td>The default pages are output.<br>For details of the default pages, refer to the list of teletext default pages.</td></tr>
<tr><td>2</td><td>Page Select</td><td>The pages selected by page in (2) below is output here.</td></tr>
<tr><td>(2)</td><td>Page<br>SET<br>Press ▭ to display the setting menu.</td><td colspan="3"> 

Page Data<br>This generator enables up to 20 pages of teletext screens to be registered.<br>Numbers for the internal data are set on each page.<br>Page data can be set from 100 to 899.</td></tr>
<tr><td>(3)</td><td>Line</td><td colspan="3">The lines in which the Teletext data is to be output are set here.<br>The figure indicates the line numbers in the first field and second field.</td></tr>
<tr><td rowspan="6"></td><td rowspan="6"></td><td rowspan="2">8,321</td><td>0</td><td>Disable</td><td>The data is not output in line 8 and line 321.</td></tr>
<tr><td>1</td><td>Enable</td><td>The data is output in line 8 and line 321.</td></tr>
<tr><td>9,322</td><td colspan="3">Same setting as above.</td></tr>
<tr><td>10,323</td><td colspan="3">Same setting as above.</td></tr>
<tr><td>.<br>.</td><td colspan="3"></td></tr>
<tr><td>22,335</td><td colspan="3">Same setting as above.</td></tr>
</table>

## ■ List of teletext default pages (page 1 of 2)

| Page No. | Description | Screen | Page No. | Description | Screen |
|---|---|---|---|---|---|
| 100 | Index Page | | 101 | Test Page | <br>Including FLASH and CONCEAL. |
| 102 | Newsflash |  | 103 | Subtitle |  |
| 200 | Character (English) | | 201 | Character (German) | |
| 202 | Character (Swedish /Finnish /Hungarian) | | 203 | Character (Italian) | |
| 204 | Character (French) | | 205 | Character (Portuguese /Spanish) | |

## ■ List of teletext default pages (page 2 of 2)

| Page No. | Description | Screen | Page No. | Description | Screen |
|---|---|---|---|---|---|
| 206 | Character (Czech /Slovak) | | 301 | Colours |  |
| 302 | White Flat |  | 505 | Clock Cracker |  |
| 515 | Multi Page | <br>4 sub-pages | 555 | Test Pattern1 | |
| 560 | Test Pattern2 |  | - | Other pages | <br>Screen for page 700 |

# 6.4 WSS

## 6.4.1 Description and specifications

■ What is WSS (Wide Screen Signaling)?

"WSS (Wide Screen Signaling)" is a system for multiplexing the aspect ratio information of the images in the vertical sync blanking interval, and sending it.

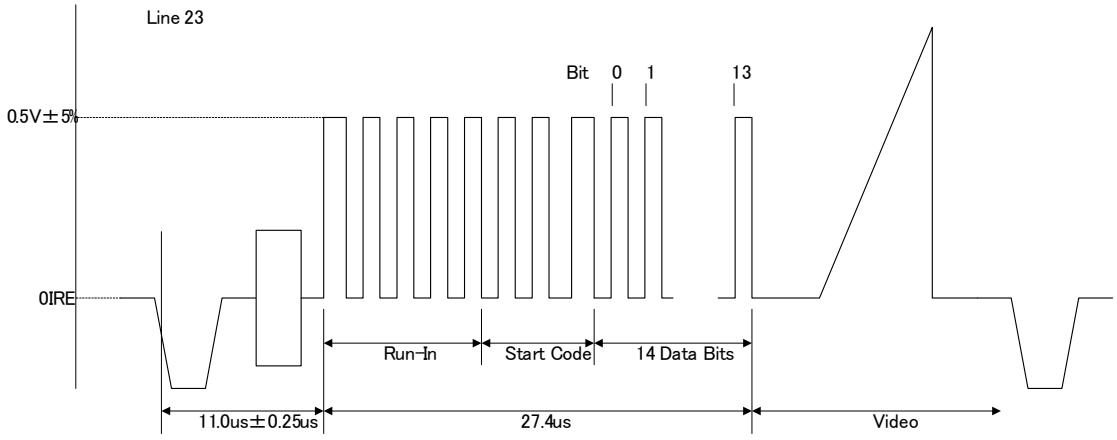
■ **WSS specifications**

WSS supports the following TV signals.

WSS is superimposed onto the composite signals and Y/C signals.

・PAL, PAL-Nc

The aspect ratio information of WSS is superimposed on line 23 of the first field. The WSS waveform consists of Run-In, Start Code and the 14-bit data. This waveform and the bit allocation are shown below.




WSS(Widscreen Signaling)

・Bit0-3 : Aspect

| Bit | | Aspect Ratio | Full format or Letterbox | Position |
|---|---|---|---|---|
| 0 1 2 | 3 | | | |
| 0 0 0 | 1 | 4:3 | Full format | Not applicable |
| 1 0 0 | 0 | 14:9 | Letterbox | Center |
| 0 1 0 | 0 | 14:9 | Letterbox | Top |
| 1 1 0 | 1 | 16:9 | Letterbox | Center |
| 0 0 1 | 0 | 16:9 | Letterbox | Top |
| 1 0 1 | 1 | >16:9 | Letterbox | Center |
| 0 1 1 | 1 | 14:9 | Full format | Center |
| 1 1 1 | 0 | 16:9 | Full format | Not applicable |

Bit3 is the parity bit.

• Bit4-13: Other service information (not supported by the VG-882-A)

## 6.4.2 Setting procedure

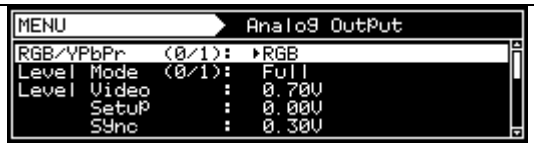
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → ◎ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Output (TIM)** using ◎ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Analog** using ◎ or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select **VBI Function** using ◎ or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Select **WSS** using ◎ or △ INC ▽ DEC, and then press SET. | |
| ⑥ | **Selecting the setting items from the table**<br>Select the parameters using SET → ◎ or △ INC ▽ DEC, and then press SET. | For details on the setting items and parameters, refer to "**Table of WSS setting items**" below. |
| ⑦ | **Setting the parameters**<br>Select the parameters using ◎ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | |
| | **After completing the settings:**<br>MENU | Display returns to the initial screen. |

**Table of WSS setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON (0/1)** | Set whether the WSS information is to be output. | | |
| | | 0 | **OFF** | WSS information is not output. |
| | | 1 | **ON** | WSS information is output. |
| (2) | **Aspect Ratio(0-7)** | Set the aspect ratio here. | | |
| | | 0 | The aspect ratio is set to **Full Format 4:3**. | |
| | | 1 | The aspect ratio is set to **LB 14:9 center**. | |
| | | 2 | The aspect ratio is set to **LB 14:9 top**. | |
| | | 3 | The aspect ratio is set to **LB 16:9 center**. | |
| | | 4 | The aspect ratio is set to **LB 16:9 top**. | |
| | | 5 | The aspect ratio is set to **LB >16:9 center**. | |
| | | 6 | The aspect ratio is set to **Full Format 14:9**. | |
| | | 7 | The aspect ratio is set to **Full Format 16:9**. | |

# 6.5 CGMS-A/ID-1

## 6.5.1 Description and specifications

■ What is CGMS-A (Copy Generation Management System)?

CGMS-A is a system of multiplexing the copy control information in the vertical sync blanking intervals, and sending it.

**■ What is ID-1?**

ID-1 is a system of multiplexing the aspect ratio information in the vertical sync blanking intervals, and sending it.

**■ CGMS-A/ID-1 specifications**

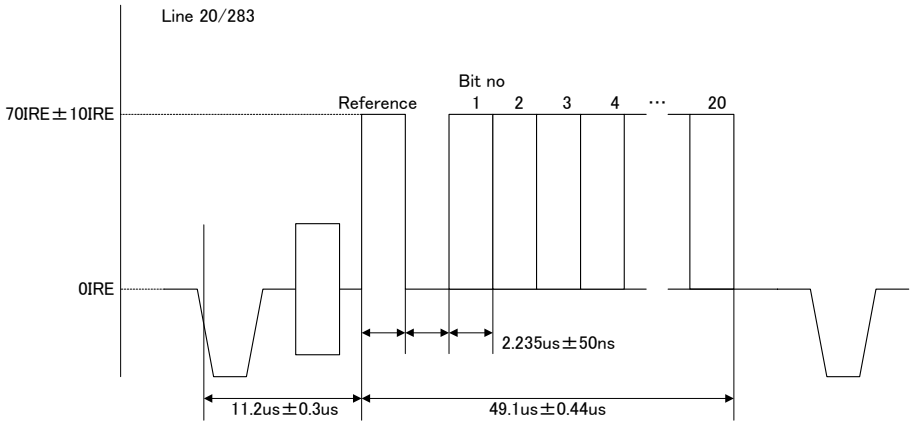
CGMS-A/ID-1 supports the following TV signals.

CGMS-A/ID-1 is superimposed onto the composite signals and Y/C signals.

・NTSC, NTSC-M, NTSC-443

・PAL-M

CGMS-A and ID-1 are superimposed onto line 20 (first field) and line 283 (second field). The CGMS-A and ID-1 waveform consists of the reference bit and 20-bit data. This waveform and the bit allocation are shown below.




CGMS-A / ID-1

・Bit1-0 : Aspect (ID-1)

| Bit | | Applications | |
|---|---|---|---|
| 1 | 2 | Aspect ratio | Picture display format |
| 0 | 0 | 4:3 | Normal |
| 1 | 0 | 16:9 | Normal |
| 0 | 1 | 4:3 | Letter Box |
| 1 | 1 | Not Defined | |

• Bit6-2: Fixed at “0000”

・Bit8-7 : CGMS-A

| Bit | | Application |
|---|---|---|
| 7 | 8 | |
| 0 | 0 | Copy is permitted without restriction |
| 1 | 0 | Condition not to be used |
| 0 | 1 | One generation of copies may be made |
| 1 | 1 | No copying is permitted |

• Bit14-9: Other service information (not supported by the VG-882-A)
• Bit20-15 : CRC

## 6.5.2 Setting procedure

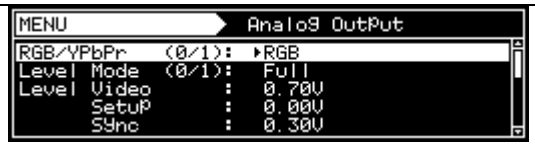
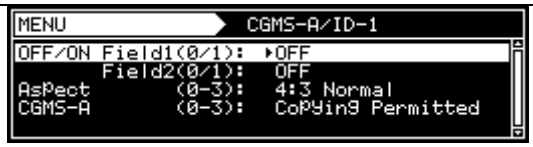
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Output (TIM)** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Analog** using ◯ or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select **VBI Function** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑤ | Select **CGMS-A/ID-1** using ◯ or △ INC ▽ DEC, and then press SET. |  |
| ⑥ | **Selecting the setting items from the table**<br>Select the parameters using SET →<br>◯ or △ INC ▽ DEC, and then press SET. | For details on the setting items and parameters, refer to "**Table of CGMS-A/ID-1 setting items**" below. |
| ⑦ | **Setting the parameters**<br>Select the parameters using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | |
| | **After completing the settings:**<br>MENU | Display returns to the initial screen. |

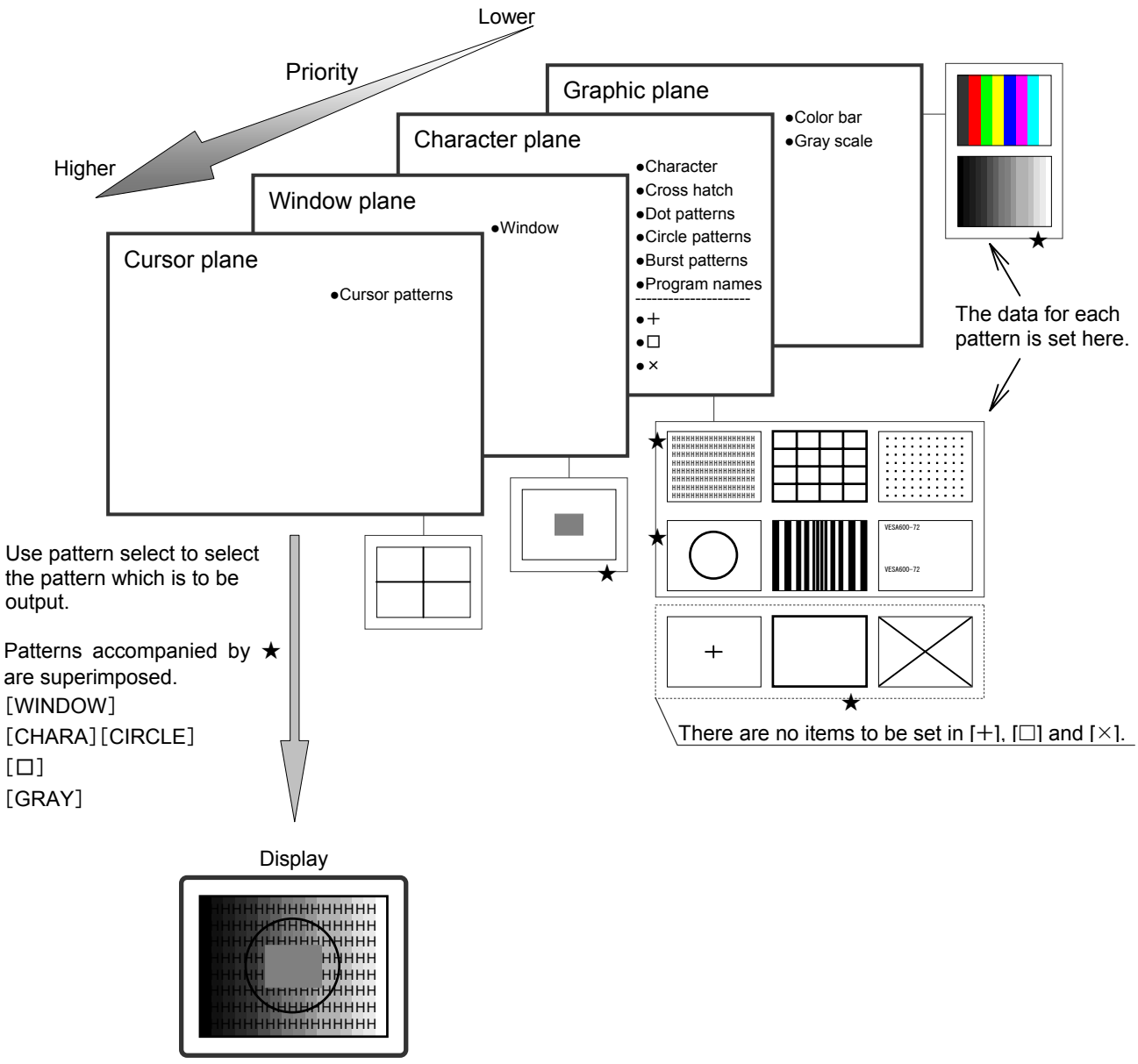
**Table of CGMS-A/ID-1 setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON Field1(0/1)** | Set whether to output the data to line 20 of the first field. | | |
| | | 0 | **OFF** | The data is not output. |
| | | 1 | **ON** | The data is output. |
| (2) | **OFF/ON Field2(0/1)** | Set whether to output the data to line 283 of the second field. | | |
| | | 0 | **OFF** | The data is not output. |
| | | 1 | **ON** | The data is output. |
| (3) | **Aspect** | Set the aspect ratio here. | | |
| | | 0 | **4:3 Normal** | The aspect ratio is set to 4:3. |
| | | 1 | **16:9 Normal** | The aspect ratio is set to 16:9. |
| | | 2 | **4:3 Letter Box** | The aspect ratio is set to 4:3 letter box. |
| | | 3 | **Not Defined** | The aspect ratio is left undefined. |
| (4) | **CGMS-A** | Set copy protection here. | | |
| | | 0 | **Copying Permitted** | Copying is permitted. |
| | | 1 | **Not Used Condition** | Copy protection is left undefined. |
| | | 2 | **Copy Once** | Copy-once is set. |
| | | 3 | **No Copying Permitted** | Copying is not permitted. |

* The same data is superimposed onto line 20 and line 283.

# 7 Action Settings

## 7.1 Planes



# 7.2 Window actions

## 7.2.1 Scrolling

For details of the action selection procedure, refer to "**2.2.5 Selecting the actions**".

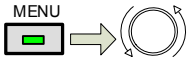
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Action (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Window** using or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Scroll** using or △ INC ▽ DEC, and then press SET. | |
| ⑤ | **Selecting the items**<br>Select the items using or △ INC ▽ DEC, and then press SET.<br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F, (number keys), and then press SET. | For details on the setting items and parameters, refer to "**Table of scroll setting items**" below. |

**Table of scroll setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON (0/1)** | Set On or Off for window scrolling. | | |
| | | 0 | **OFF** | Window scrolling is set to Off. |
| | | 1 | **ON** | Window scrolling is set to On. |
| (2) | **Direction(0-A)** | Set the direction of scrolling here. | | |
| | | 0 | **Left** | The window is scrolled to the left. |
| | | 1 | **Right** | The window is scrolled to the right. |
| | | 2 | **Up** | The window is scrolled up. |
| | | 3 | **Down** | The window is scrolled down. |
| | | 4 | **Left Up** | The window is scrolled to the top left. |
| | | 5 | **Left Down** | The window is scrolled to the bottom left. |
| | | 6 | **Right Up** | The window is scrolled to the top right. |
| | | 7 | **Right Down** | The window is scrolled to the bottom right. |
| | | 8 | **Left<->Right** | The window is scrolled to the left and right. |
| | | 9 | **Up<->Down** | The window is scrolled up and down. |
| | | A | **Random** | The window is scrolled randomly. |
| (3) | **Mode(0-4)** | Set the interval (execution interval) mode for window scrolling here. | | |
| | | 0 | **User** | The window is scrolled as per the **Interval 1-4 setting**. |
| | | 1 | **60i->60i** | The interval (execution interval) is set to 1 V. |
| | | 2 | **24p->60i 2-3PullDown** | The interval (execution interval) is set to 2 V and 3 V and repeated. |
| | | 3 | **25p->50i** | The interval (execution interval) is set to 2 V. |
| | | 4 | **30p->60i** | The interval (execution interval) is set to 2 V. |
| (4) | **Interval(Interval 1)** | Set the interval (execution interval) here. Setting range: 1 V to 255 V<br>This setting takes effect only when **User** has been selected as the **Mode** setting. | | |
| (5) | **Step(Step 1)** | Set the amount of movement per interval (execution interval) here. | | |
| | | **H** | Setting range: 1 to 255 dots<br>This setting takes effect only when **Left** or **Right** has been selected as the **Direction** setting. | |
| | | **V** | Setting range: 1H to 255H<br>This setting takes effect only when **Up** or **Down** has been selected as the **Direction** setting. | |
| The following settings take effect only when **User** has been selected as the **Mode** setting. | | | | |
| (6) | **Interval 2 - 4** | Set the interval (execution interval) here. Setting range: 0 V to 255 V<br>When a setting other than “0” has been selected, the conditions which have been set are repeated in sequence starting with **Interval 1**.<br>Example: **Interval 1** → **Interval 2** → **Interval 3** → **Interval 1** → ⋯ | | |
| (7) | **Step 2 - 4** | Set the amount of movement per interval (execution interval) here.<br>The amount of movement corresponding to the **Interval 2-4** setting is set. | | |
| | | **H** | Setting range: 0 to 255 dots<br>This setting takes effect only when **Left** or **Right** has been selected as the **Direction** setting. | |
| | | **V** | Setting range: 0H to 255H<br>This setting takes effect only when **Up** or **Down** has been selected as the **Direction** setting. | |

## 7.2.2 Flickering

For details of the action selection procedure, refer to "**2.2.5 Selecting the actions**".

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → ◯, or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Action (PAT)** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Window** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ④ | Select **Flicker** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ⑤ | **Selecting the items**<br>Select the items using ◯ or △ INC ▽ DEC and then press SET.<br>**Setting the parameters**<br>Select the parameters using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details on the setting items and parameters, refer to "**Table of flicker setting items**" below. |

**Table of flicker setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON (0/1)** | Set On or Off for window flicker. | | |
| | | 0 | **OFF** | Window flicker is set to Off. |
| | | 1 | **ON** | Window flicker is set to On. |
| (2) | **Interval** | Set the interval (execution interval) here.<br>Setting range: 1 V to 255 V<br>*** Set this to 2 V or higher when using interlaced output.** | | |

## 7.2.3 Level up/down actions

For details of the action selection procedure, refer to "**2.2.5 Selecting the actions**".

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → ⇧ INC ⇩ DEC or ⇧ INC ⇩ DEC, and then press SET. | |
| ② | Select **Action (PAT)** using ⇧ INC ⇩ DEC or ⇧ INC ⇩ DEC, and then press SET. | |
| ③ | Select **Window** using ⇧ INC ⇩ DEC or ⇧ INC ⇩ DEC, and then press SET. | |
| ④ | Select **Level Up/Down** using ⇧ INC ⇩ DEC or ⇧ INC ⇩ DEC, and then press SET. | |
| ⑤ | **Selecting the items**<br>Select the items using ⇧ INC ⇩ DEC or ⇧ INC ⇩ DEC and then press SET.<br>**Setting the parameters**<br>Select the parameters using ⇧ INC ⇩ DEC or ⇧ INC ⇩ DEC, and then press SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details on the setting items and parameters, refer to "**Table of level up/down setting items**" below. |

**Table of level up/down setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON(0/1)** | Set On or Off for level up/down. | | |
| | | 0 | **OFF** | Level up/down is set to Off. |
| | | 1 | **ON** | Level up/down is set to On. |
| (2) | **Direction(0/1)** | Set the direction in which the level is changed. | | |
| | | 0 | **Up** | Select this to increment the level. |
| | | 1 | **Down** | Select this to decrement the level. |
| (3) | **Interval** | Set the interval (execution interval) here. Setting range: 1 V to 255 V | | |
| (4) | **Step** | Set the amount of increase/decrease per interval (execution interval) here. Setting range: 1 to 255 | | |

## 7.2.4 Level sequence action

For details of the action selection procedure, refer to "**2.2.5 Selecting the actions**".

| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU → ⇧INC ⇩DEC or SET. | |
| ② | Select **Action (PAT)** using ⇧INC ⇩DEC or SET. | |
| ③ | Select **Window** using ⇧INC ⇩DEC or SET. | |
| ④ | Select **Level Sequence** using ⇧INC ⇩DEC or SET. | |
| ⑤ | **Selecting the items**<br>Select the items using ⇧INC ⇩DEC or SET.<br>**Setting the parameters**<br>Select the parameters using ⇧INC ⇩DEC or SET.<br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details on the setting items and parameters, refer to "**Table of level sequence setting items**" below. |

**Table of level sequence setting items**

<table>
<tr><td rowspan="3">(1)</td><td rowspan="3">OFF/ON(0/1)</td><td colspan="3">Set On or Off for level sequence.</td></tr>
<tr><td>0</td><td>OFF</td><td>Level sequence is set to Off.</td></tr>
<tr><td>1</td><td>ON</td><td>Level sequence is set to On.</td></tr>
<tr><td>(2)</td><td>Number</td><td colspan="3">Set the number of level sequences. Setting range: 1 to 16<br>The sequences are repeated in order for the number of times set here.</td></tr>
<tr><td rowspan="4">(3)</td><td rowspan="4">1 - 16</td><td colspan="3">The RGB levels and interval (execution interval) in each sequence are set here.</td></tr>
<tr><td colspan="2">(R)</td><td rowspan="3">Set the R, G, and B levels.<br>8-bit setting range: 0 to 255<br>9-bit setting range: 0 to 511<br>10-bit setting range: 0 to 1023<br>11-bit setting range: 0 to 2047<br>12-bit setting range: 0 to 4095</td></tr>
<tr><td colspan="2">(G)</td></tr>
<tr><td colspan="2">(B)</td></tr>
<tr><td colspan="2">(Time)</td><td>Set the interval (execution interval) here. Setting range: 1 V to 9999 V</td></tr>
</table>

# 7.3 Graphic plane scrolling actions

For details of the action selection procedure, refer to "**2.2.5 Selecting the actions**".

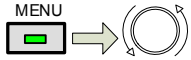
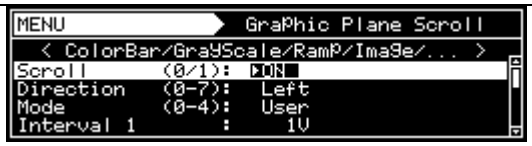
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Action (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Graphic Plane** using or △ INC ▽ DEC and then press SET. |  |
| ④ | **Selecting the items**<br>Select the items using or △ INC ▽ DEC and then press SET.<br><br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details on the setting items and parameters, refer to "**Table of graphic plane setting items**" below. |

**Table of graphic plane setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Scroll(0/1)** | Set On or Off for scrolling. | | |
| | | 0 | **OFF** | Scrolling is set to Off. |
| | | 1 | **ON** | Scrolling is set to On. |
| (2) | **Direction(0-7)** | Set the direction of scrolling here. | | |
| | | 0 | **Left** | The window is scrolled to the left. |
| | | 1 | **Right** | The window is scrolled to the right. |
| | | 2 | **Up** | The window is scrolled up. |
| | | 3 | **Down** | The window is scrolled down. |
| | | 4 | **Left Up** | The window is scrolled to the top left. |
| | | 5 | **Left Down** | The window is scrolled to the bottom left. |
| | | 6 | **Right Up** | The window is scrolled to the top right. |
| | | 7 | **Right Down** | The window is scrolled to the bottom right. |
| (3) | **Mode(0-4)** | Set the interval (execution interval) mode for scrolling here. | | |
| | | 0 | **User** | The window is scrolled as per the **Interval 1-4 setting**. |
| | | 1 | **60i->60i** | The interval (execution interval) is set to 1 V. |
| | | 2 | **24p->60i 2-3PullDown** | The interval (execution interval) is set to 2 V and 3 V and repeated. |
| | | 3 | **25p->50i** | The interval (execution interval) is set to 2 V. |
| | | 4 | **30p->60i** | The interval (execution interval) is set to 2 V. |
| (4) | **Interval(Interval 1)** | Set the interval (execution interval) here. Setting range: 1 V to 255 V<br>This setting takes effect only when **User** has been selected as the **Mode** setting. | | |
| (5) | **Step(Step 1)** | Set the amount of movement per interval (execution interval) here. | | |
| | | **H** | Setting range: 1 to 4095 dots<br>This setting takes effect only when **Left** or **Right** has been selected as the **Direction** setting. | |
| | | **V** | Setting range: 1H to 4095H<br>This setting takes effect only when **Up** or **Down** has been selected as the **Direction** setting. | |
| The following settings take effect only when **User** has been selected as the **Mode** setting. | | | | |
| (6) | **Interval 2 - 4** | Set the interval (execution interval) here. Setting range: 0 V to 255 V<br>When a setting other than “0” has been selected, the conditions which have been set are repeated in sequence starting with **Interval 1**.<br>Example: **Interval 1** → **Interval 2** → **Interval 3** → **Interval 1** → ⋯ | | |
| (7) | **Step 2 - 4** | Set the amount of movement per interval (execution interval) here.<br>The amount of movement corresponding to the **Interval 2-4** setting is set. | | |
| | | **H** | Setting range: 0 to 255 dots<br>This setting takes effect only when **Left** or **Right** has been selected as the **Direction** setting. | |
| | | **V** | Setting range: 0H to 255H<br>This setting takes effect only when **Up** or **Down** has been selected as the **Direction** setting. | |

# 7.4 Character plane scrolling actions

For details of the action selection procedure, refer to "**2.2.5 Selecting the actions**".

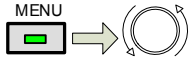
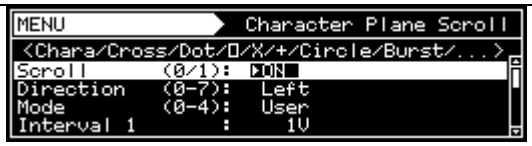
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Action (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Character Plane** using or △ INC ▽ DEC and then press SET. |  |
| ④ | **Selecting the items**<br>Select the items using or △ INC ▽ DEC and then press SET.<br><br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details on the setting items and parameters, refer to "**Table of character plane setting items**" below. |

**Table of character plane setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **Scroll(0/1)** | Set On or Off for scrolling. | | |
| | | 0 | **OFF** | Scrolling is set to Off. |
| | | 1 | **ON** | Scrolling is set to On. |
| (2) | **Direction(0-7)** | Set the direction of scrolling here. | | |
| | | 0 | **Left** | The window is scrolled to the left. |
| | | 1 | **Right** | The window is scrolled to the right. |
| | | 2 | **Up** | The window is scrolled up. |
| | | 3 | **Down** | The window is scrolled down. |
| | | 4 | **Left Up** | The window is scrolled to the top left. |
| | | 5 | **Left Down** | The window is scrolled to the bottom left. |
| | | 6 | **Right Up** | The window is scrolled to the top right. |
| | | 7 | **Right Down** | The window is scrolled to the bottom right. |
| (3) | **Mode(0-4)** | Set the interval (execution interval) mode for scrolling here. | | |
| | | 0 | **User** | The window is scrolled as per the **Interval 1-4 setting**. |
| | | 1 | **60i->60i** | The interval (execution interval) is set to 1 V. |
| | | 2 | **24p->60i 2-3PullDown** | The interval (execution interval) is set to 2 V and 3 V and repeated. |
| | | 3 | **25p->50i** | The interval (execution interval) is set to 2 V. |
| | | 4 | **30p->60i** | The interval (execution interval) is set to 2 V. |
| (4) | **Interval(Interval 1)** | Set the interval (execution interval) here. Setting range: 1 V to 255 V<br>This setting takes effect only when **User** has been selected as the **Mode** setting. | | |
| (5) | **Step(Step 1)** | Set the amount of movement per interval (execution interval) here. | | |
| | | **H** | Setting range: 1 to 4095 dots<br>This setting takes effect only when **Left** or **Right** has been selected as the **Direction** setting. | |
| | | **V** | Setting range: 1H to 4095H<br>This setting takes effect only when **Up** or **Down** has been selected as the **Direction** setting. | |
| The following settings take effect only when **User** has been selected as the **Mode** setting. | | | | |
| (6) | **Interval 2 - 4** | Set the interval (execution interval) here. Setting range: 0 V to 255 V<br>When a setting other than “0” has been selected, the conditions which have been set are repeated in sequence starting with **Interval 1**.<br>Example: **Interval 1** → **Interval 2** → **Interval 3** → **Interval 1** → ⋯ | | |
| (7) | **Step 2 - 4** | Set the amount of movement per interval (execution interval) here.<br>The amount of movement corresponding to the **Interval 2-4** setting is set. | | |
| | | **H** | Setting range: 0 to 255 dots<br>This setting takes effect only when **Left** or **Right** has been selected as the **Direction** setting. | |
| | | **V** | Setting range: 0H to 255H<br>This setting takes effect only when **Up** or **Down** has been selected as the **Direction** setting. | |

# 7.5 Scroll sequence

The scroll sequence settings can be used to perform scrolling for each plane with up to 16 sequences.

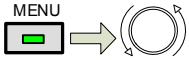
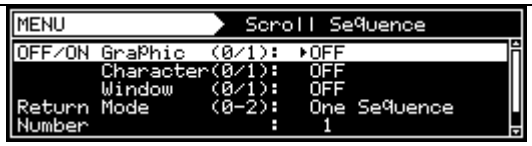
| | | |
|---|---|---|
| ① | Select **Program Edit** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Action (PAT)** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Scroll Sequence** using or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select the items using or △ INC ▽ DEC and then press SET.<br><br>**Setting the parameters**<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F (number keys), and then press SET. | For details on the setting items and parameters, refer to "**Table of scroll sequence setting items**" below. |

**Table of scroll sequence setting items**

| | | | | |
|---|---|---|---|---|
| (1) | **OFF/ON (0/1)** | Set On or Off for graphic/character/window plane. | | |
| | | 0 | **OFF** | |
| | | 1 | **ON** | |
| (2) | **Return Mode (0-2)** | Set the mode to restore the scroll position. | | |
| | | 0 | **One Sequence** | Restore the scroll position for each sequence. |
| | | 1 | **All Sequence** | Restore the scroll position for all sequences. |
| | | 2 | **Random** | Do not restore the scroll position.<br>In this mode, **Parameter** (scrolling direction, execution interval, amount of movement, and execution time) changes randomly for each sequence regardless of the set value.<br>However, with the exception of the scrolling direction, the set value becomes the upper limit. |
| (3) | **Number** | Set the number of sequences.<br>Setting range: **1 to 16** | | |
| **Parameter** | | | | |
| (1) | **Direction** | Set the direction of scrolling here. | | |
| | | 0 | **L** | The window is scrolled to the left. |
| | | 1 | **R** | The window is scrolled to the right. |
| | | 2 | **U** | The window is scrolled up. |
| | | 3 | **D** | The window is scrolled down. |
| | | 4 | **L-U** | The window is scrolled to the top left. |
| | | 5 | **L-D** | The window is scrolled to the bottom left. |
| | | 6 | **R-U** | The window is scrolled to the top right. |
| | | 7 | **R-D** | The window is scrolled to the bottom right. |
| (2) | **Interval** | Set the interval (execution interval) here.<br>Setting range: **1 to 255 V** | | |
| (3) | **H Step** | Set the amount of horizontal movement per interval (execution interval) here.<br>Setting range: **1 to 255 dots** | | |
| (4) | **V Step** | Set the amount of vertical movement per interval (execution interval) here.<br>Setting range: **1 to 255 H** | | |
| (5) | **Time** | Set the execution time per sequence.<br>Setting range: **1 to 999 V** | | |

# 8 VG-882-A System Settings

## 8.1 CONFIG Settings

### 8.1.1 Beep setting

The buzzer, which sounds when any of the keys on the front panel of the VG-882-A (or on the RB-1870 or RB-1871) are pressed, can be turned on or off.

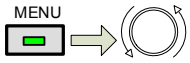
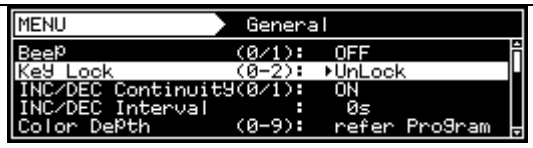
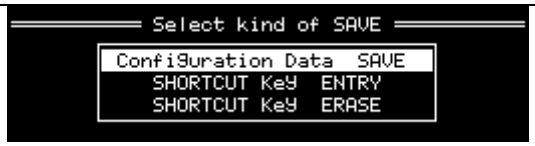
<table>
<tr><td>①</td><td>Select Configuration using MENU or △ INC ▽ DEC, and then press SET.</td><td>
</td></tr>
<tr><td>②</td><td>Select General using or △ INC ▽ DEC, and then press SET.</td><td>
</td></tr>
<tr><td>③</td><td>Select Beep using or △ INC ▽ DEC, and then press SET.<br><br>Inputting the parameters<br>Select the parameters using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the parameters using 0/STATUS to 9/F, and then press SET (number keys).</td><td>

<br>This sets the beep.
<table>
<tr><td>0</td><td>OFF</td><td>The beep is turned off.</td></tr>
<tr><td>1</td><td>ON</td><td>The beep is turned on.</td></tr>
</table></td></tr>
</table>

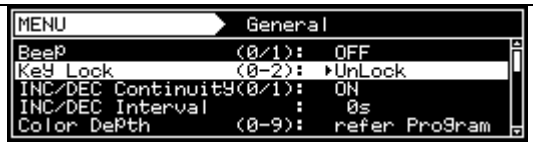
## 8.1.2 Key lock setting

The keys on the VG-882-A can be locked.

**Key lock setting**

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC, and then press SET. |  |
| ③ | Select **Key Lock** using or △ INC ▽ DEC.<br>Select the setting using or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the setting using 0/STATUS to 9/F (number keys). | **UnLock:**<br>Key lock is not set.<br><br>**Lock:**<br>The keys set by the SP-8870 are locked.<br>* For details on the settings, refer to the instruction manual of the SP-8870 software.<br><br>**ALL Lock:**<br>All keys are locked. |
| ④ | Call the SAVE menu using SAVE.<br>Select **Configuration Data SAVE** using or △ INC ▽ DEC, and then press SET.<br>After the setting is saved, the key lock setting takes effect when the power is turned off and then turned back on. |  |

**Key lock release and unlock settings**

| | | |
|---|---|---|
| ① | After the key lock setting is saved, the setting takes effect when the power of the generator is turned on.<br>To release the key lock setting:<br>Press MENU for about 5 seconds.<br>Key lock is released and MENU is opened. | |
| ② | Save the Unlock setting by following steps ① to ④ for the key lock setting. |  |

*** Unless the Unlock setting is saved, the key lock setting will take effect when the generator is turned on.**

## 8.1.3 INC/DEC Continuity setting

The INC/DEC key continuity function enables the holding down of the INC and DEC keys to be enabled or disabled. This function works only when programs are selected and executed.

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU<br>or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC,<br>and then press SET. | |
| ③ | Select **INC/DEC Continuity** using or △ INC ▽ DEC.<br>Select **ON/OFF** using or △ INC ▽ DEC,<br>and then press SET.<br>Alternatively, select ON/OFF using 0/STATUS to 9/F (number keys). | **ON:**<br>Programs continue to be switched while the INC or DEC key is held down.<br><br>**OFF:**<br>The number of programs switched corresponds to the number of times the INC or DEC key is pressed. Whether the keys are tapped or held down makes no difference.<br><br>For the switching intervals, refer to “8.1.4 INC/DEC interval setting”. |

## 8.1.4 INC/DEC interval setting

This function enables the minimum interval for switching programs to be set using the INC and DEC key. This function works only when programs are selected and executed.

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU<br>or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC,<br>and then press SET. | |
| ③ | Select **INC/DEC Interval** using or △ INC ▽ DEC.<br>Select the value using or △ INC ▽ DEC,<br>and then press SET.<br>Alternatively, select the value using 0/STATUS to 9/F (number keys). | Set using a value from **0 s to 10 s**<br>The lower the value, the faster the switching speed. |

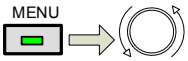
## 8.1.5 Color depth setting

This setting makes it possible to specify whether the number of color gray scale bits for the output images is to match the program data or whether it is to be fixed.

For details, refer to "**5.1.4 Setting the output gradation (bit length)**".

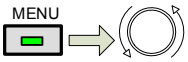
## 8.1.6 SAMPLE RGB/YPbPr setting

This setting makes it possible to specify whether the color space of the output images is to match the sample program data or whether it is to be fixed to RGB.

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **SAMPLE RGB/YPbPr** using or △ INC ▽ DEC.<br>Select the value using or △ INC ▽ DEC, and then press SET.<br>Alternatively, select the value using 0/STATUS to 9/F (number keys). | **Default:**<br>RGB/YPbPr is changed in accordance with the color space registered in the sample program data.<br><br>**RGB:**<br>The color space is fixed to RGB.<br>Due to the stipulations of the DVI and other standards, the color difference signals are output at the "Default" setting when the EIA timing or other such data of the sample program has been selected for outputs with no color difference signals. However, fixing the color space to RGB enables RGB output without having to edit the program. |

## 8.1.7 DDC clock setting

The DDC clock can be set.

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **DDC Clock** using or △ INC ▽ DEC.<br>Select the value using or △ INC ▽ DEC, and then press SET.<br>Alternatively, select the value using 0/STATUS to 9/F (number keys). | Select **20, 40, 60, 80 or 100** kHz.<br>The factory setting is 100 kHz. |

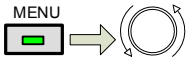
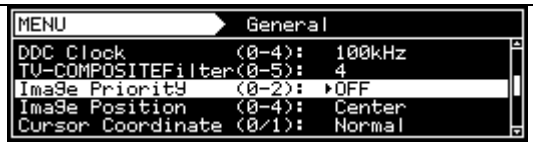
## 8.1.8 Image - priority setting

Image priority settings can be performed.

Data can be saved both in the internal memory of the VG-882-A or in the USB memory.

This setting is used to set the priority when both sets of image data are valid.

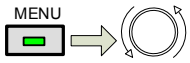
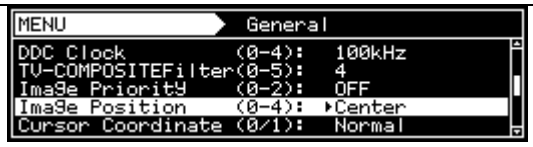
This setting provides some advantages such as increasing the drawing speed, distributing the data to the internal memory and USB memory, and calling the saved data.

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC, and then press SET. |  |
| ③ | Select **Image Priority** using or △ INC ▽ DEC.<br><br>Select the setting using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively, select the setting using 0/STATUS to 9/F (number keys). | **OFF:**<br>When the USB memory device is connected, the image data in the USB memory is valid and the image data in the internal memory is invalid.<br><br>**Internal > USB:**<br>The image data both in the internal memory and the USB memory are valid. In this mode, reading of the image data in the internal memory takes priority. An increase in the drawing speed can be expected.<br><br>**USB > Internal:**<br>The image data both in the internal memory and the USB memory are valid. In this mode, reading of the image data in the USB memory takes priority. |

## 8.1.9 Image position setting

The image position setting can be used to change the bitmap display position.

*** Bitmap resolution can be set only when its resolution is lower than display resolution.**

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC, and then press SET. |  |
| ③ | Select **Image Position** using or △ INC ▽ DEC.<br>Select the setting using or △ INC ▽ DEC, and then press SET.<br>Alternatively, select the setting using 0/STATUS to 9/F (number keys). | For details of the setting, refer to table below. |

| Key | LCD display | Description |
|---|---|---|
| 0 | Center | The image is displayed at the center of the screen. |
| 1 | Top-Left | The image is displayed at the top left of the screen. |
| 2 | Bottom-Left | The image is displayed at the bottom left of the screen. |
| 3 | Top-Right | The image is displayed at the top right of the screen. |
| 4 | Bottom-Right | The image is displayed at the bottom right of the screen. |

## 8.1.10 Cursor coordinate setting

The position for displaying the cursor coordinates can be set. For details on the On/Off setting for the coordinate display, refer to "**4.12 Cursor patterns**".

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **Cursor Coordinate** using or △ INC ▽ DEC.<br>Select the setting using or △ INC ▽ DEC, and then press SET.<br>Alternatively, select the setting using 0/STATUS to 9/F (number keys). | For details of the setting, refer to table below. |

| Key | LCD display | Description |
|---|---|---|
| 0 | Normal | The coordinates are displayed at the top left or right of the display. |
| 1 | Move with Curs | The display appears near the actual cursor coordinates and moves as the cursor moves. |

## 8.1.11 Digital video level step setting

This function can be used to increase the digital video level adjustment speed by pressing the SHIFT key while adjusting the digital video level.

Set the number of steps at this time here. (For details of the adjusting the level, refer to "**5.1.8 Setting the digital video level**".)

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU → ◎ or △INC ▽DEC, and then press SET. | |
| ② | Select **General** using ◎ or △INC ▽DEC, and then press SET. | |
| ③ | Select the **DV Level Step (SHIFT)** using ◎ or △INC ▽DEC.<br>Select the setting using ◎ or △INC ▽DEC, and then press SET.<br>Alternatively, select the setting using 0/STATUS to 9/F (number keys). | Setting range: 0 (factory setting), 1 to 32767<br><br>When this is set to "0", the default number of steps that depends on the bit length (level) is used.<br>When this is set to "1 to 32767", the number of set steps is used regardless of the bit length (level). |

## 8.1.12 RB-1870 CUSTOM Key 1/2 and RB-1871 CUSTOM Key 1/2

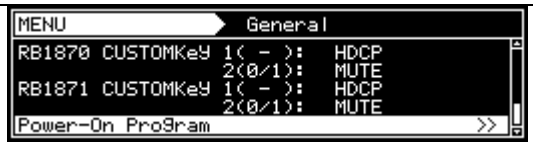
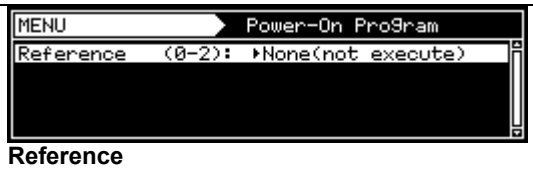
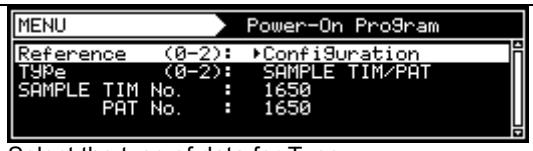
RB-1870 Custom Key 2 and RB-1871 Custom Key 2 can be set.

Either MUTE or HDMI AV-MUTE can be selected.

| | | |
|---|---|---|
| ① | Select **Configuration** using MENU → ◎ or △INC ▽DEC, and then press SET. | |
| ② | Select **General** using ◎ or △INC ▽DEC, and then press SET. | |
| ③ | Select **CUSTOM Key 2** or **RB-1871 CUSTOM Key 2** using ◎ or △INC ▽DEC.<br>Select the setting using ◎ or △INC ▽DEC, and then press SET.<br>Alternatively, select the setting using 0/STATUS to 9/F (number keys). | **MUTE:**<br>Operates as audio mute.<br><br>**HDMI AV-MUTE:**<br>Operates as HDMI AV-mute.<br>This is set to Off when the program is switched.<br><br>* When the setting is changed, MUTE or HDMI AV-MUTE is set to Off. |

## 8.1.13 Operation mode at power-on

The program to be executed immediately after turning on the power of the VG-882-A can be set.

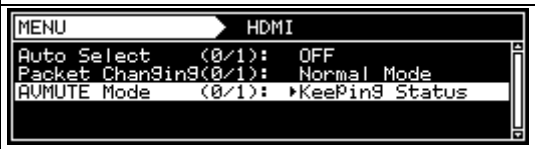
| | | |
|---|---|---|
| ① | Select **Configuration** using MENU or △ INC ▽ DEC, and then press SET. | |
| ② | Select **General** using or △ INC ▽ DEC, and then press SET. |  |
| ③ | Select **Power-On-Program** using or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select the setting using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the setting using 0/STATUS to 9/F (number keys), and then press SET. | **Reference**<br>**None（not execute）:**<br>The program is not executed when the generator's power is turned on.<br><br>**Configuration:**<br>The program which was set in step ⑤ is executed.<br><br>**Last Memory:**<br>The Last Memory operation (the program which was executed immediately before the generator's power was turned off) is executed.<br>However, some restrictions apply. Refer to notes below. |
| ⑤ | **When Configuration has been selected**<br><br>Select the setting using or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the setting using 0/STATUS to 9/F (number keys), and then press SET. |  <br>Select the type of data for Type.<br><br>**Type**<br>**SAMPLE TIM/PAT:**<br>Internal sample data (timing or pattern data)<br><br>**USER Program:**<br>Program data created and registered by the user.<br><br>**Group:**<br>Group data created and registered by the user. |

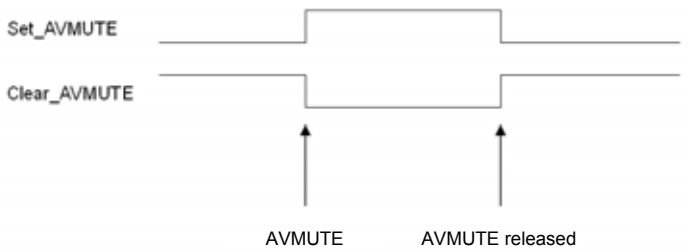
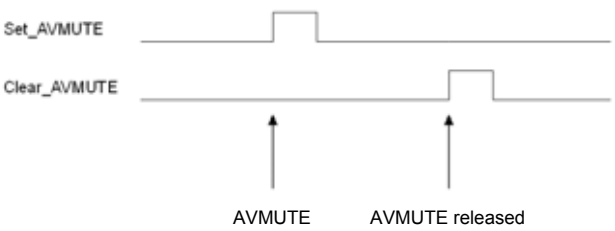
* Last Memory restrictions

1. The user program will be executed in cases where the data types differ, such as when internal sample data is selected as the timing data and a user program is selected as the pattern data.
   (Example: When TIM=1001 and PAT=1, then TIM=PAT=1 is executed.)
2. The timing data number will be executed in cases where user programs are selected as both the timing data and pattern data but their numbers differs.
   (Example: When TIM=5 and PAT=1, then TIM=PAT=5 is executed.)
3. When Last Memory is executed using a group, the data at the head of the group will be executed.

### 8.1.14 AVMUTE operation mode settings

It is possible to select the method used to set the Set_AVMUTE and Clear_AVMUTE flags in the General Control Packet when executing AVMUTE (set/clear) operations.

| | | |
|---|---|---|
| (1) | Select **Configuration** using MENU or △ INC ▽ DEC, and then press SET. | |
| (2) | Select **HDMI** using or △ INC ▽ DEC, and then press SET. |  |
| (3) | Select **AVMUTE Mode** using or △ INC ▽ DEC.<br>Select the setting using or △ INC ▽ DEC, and then press SET.<br>Alternatively, select the setting using the number keys ( 0/STATUS to 9/F ). | For details on the settings, refer to the table below. |

| Key | LCD display | Description |
|---|---|---|
| 0 | Keeping Status | The status is always sent with ON set for the Set_AVMUTE flag when executing AVMUTE operations.<br>When AVMUTE is released (when images are output), the status is always sent with ON set for the Clear_AVMUTE flag.<br>  |
| 1 | Pulse | The pulses are normally sent with OFF set for both the Set_AVMUTE and Clear_AVMUTE flags.<br>When AVMUTE is executed, OFF is sent after several frames have been sent with ON set for the Set_AVMUTE flag.<br>When AVMUTE is released, OFF is sent after several frames have been sent with ON set for the Clear_AVMUTE flag.<br>* Select these modes when executing HDMI CTS Test-ID 8-16 using the SP-8870 HDMI CTS Tool.<br>  |

# 9 Other Functions

## 9.1 Copying and erasing data

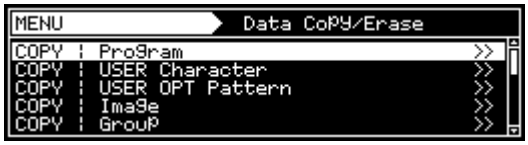
The data stored on the media (internal memory or USB memory) can be copied or erased.

CAUTION

Avoid removing the USB memory device or turning off the power while data is being copied or erased.

### 9.1.1 Copying programs

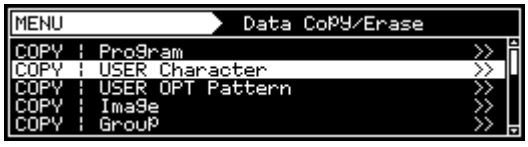
Various methods can be used to copy the program data.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU ◯ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **Copy: Program** using ◯ or △ INC ▽ DEC, and then press SET. |  |
| ③ | Select the program using ◯ or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the program using 0/STATUS to 9/F, and then press SET.<br>(number keys), and then press SET. | <br>**Type:** Select the type of data copying.<br>**Source:** Select the copy source number and media.<br>**Destination:** Select the copy destination number and media. |

| | | |
|---|---|---|
| | **Program categories for Type**<br>**1-Program**<br>Select this when copying stored programs in their original form.<br><br>**1-SAMPLE TIM&PAT->Program**<br>Select this when combining the timing data and pattern data among the internal sample data to create a program.<br><br>**1-TIM(Timing/Output/Audio)**<br>Select this when combining the timing data of the source program with the pattern data of the destination program and overwriting the existing program.<br>* This setting cannot be used when the program does not exist at the destination end.<br><br>**1-PAT(Pattern/Action)**<br>Select this when combining the pattern data of the source program with the timing data of the destination program and overwriting the existing program.<br>* This setting cannot be used when the program does not exist at the destination end.<br><br>**Multiple-Program**<br>Select this when copying multiple programs. | **Differences in the settings**<br>**1-Program**<br>Select the source and destination program numbers and media.<br><br>**1-SAMPLE TIM&PAT->Program**<br>Select the timing or pattern data number among the internal sample data to serve as the source, and select the program number and media to serve as the destination.<br><br>**1-TIM(Timing/Output/Audio)**<br>Select the program number and media for the timing data to be used as the source, and select the program number and media for the pattern data to be used as the destination.<br><br>**1-PAT(Pattern/Action)**<br>Select the program number and media for the pattern data to be used as the source, and select the program number and media for the timing data to be used as the destination.<br><br>**1-Multiple-Program**<br>Select the range of the source and destination program numbers and the media. |
| ④ | Select **EXECUTE** using the dial or INC DEC, and then press SET to complete the copying. | |

## 9.1.2 Copying user characters

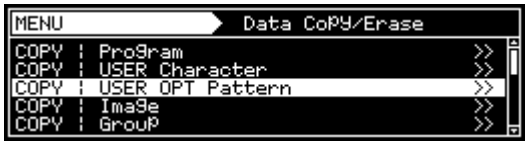
User character pattern data can be copied.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU or INC DEC, and then press SET. | |
| ② | Select **Copy: USER Character** using the dial or INC DEC, and then press SET. |  |
| ③ | Select the characters using the dial or INC DEC, and then press SET.<br><br>Alternatively:<br>Select the characters using 0/STATUS to 9/F (number keys), and then press SET. | <br>**Source:**<br>Select the copy source character code (such as e0H) and the media.<br>**Destination:**<br>Select the copy destination character code (such as e0H) and the media. |

| | | |
|---|---|---|
| ④ | Select **EXECUTE** using or , and then press SET to complete the copying. | |

## 9.1.3 Copying user optional patterns

User optional pattern data can be copied.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU or , and then press SET. | |
| ② | Select **Copy: USER OPT Pattern** using or , and then press SET. |  |
| ③ | Select the patterns using or , and then press SET.<br><br>Alternatively:<br>Select the patterns using 0/STATUS to 9/F (number keys), and then press SET. | <br>**Source:**<br>Select the copy source pattern number and media.<br><br>**Destination:**<br>Select the copy destination pattern number and media. |
| ④ | Select **EXECUTE** using or , and then press SET to complete the copying. | |

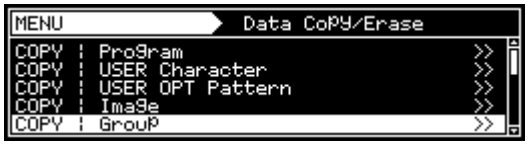
## 9.1.4 Copying images

Image pattern data can be copied.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU → or INC DEC, and then press SET. | |
| ② | Select **Copy: Image** using or INC DEC, and then press SET. | |
| ③ | Select the images using or INC DEC, and then press SET.<br><br>Alternatively:<br>Select the images using 0/STATUS to 9/F, and then press SET. | <br>**Source:**<br>Select the copy source pattern number and media.<br><br>**Destination:**<br>Select the copy destination pattern number and media. |
| ④ | Select **EXECUTE** using or INC DEC, and then press SET to complete the copying. | |

## 9.1.5 Copying groups

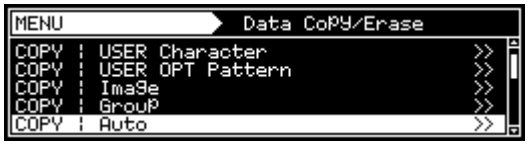
Group data can be copied.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU → or INC DEC, and then press SET. | |
| ② | Select **COPY: Group** using or INC DEC, and then press SET. |  |

| | | |
|---|---|---|
| ③ | Select the groups using ◯ or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br><br>Select the groups using 0/STATUS to 9/F, (number keys), and then press SET. | <br>**Source:**<br>Select the copy source group number and media.<br><br>**Destination:**<br>Select the copy destination group number and media. |
| ④ | Select **EXECUTE** using ◯ or △ INC ▽ DEC, and then press SET to complete the copying. | |

## 9.1.6 Copying auto executions

Auto execution data can be copied.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU ◯ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **COPY: Auto** using ◯ or △ INC ▽ DEC, and then press SET. |  |
| ③ | Select the auto executions using ◯ or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br><br>Select the auto executions using 0/STATUS to 9/F (number keys), and then press SET. | <br>**Source:**<br>Select the copy source media.<br><br>**Destination:**<br>Displays the copy destination media.<br>(When the copy source media is selected, the copy destination media is selected automatically.) |
| ④ | Select **EXECUTE** using ◯ or △ INC ▽ DEC, and then press SET to complete the copying. | |

## 9.1.7 Copying all data

All data can be copied together.

The time taken to copy the data differs according to how much data is to be copied. It is not possible to cancel copying once it has been initiated.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU, or △ INC ▽ DEC, and then press SET. | |
| ② | Select **COPY: All** using or △ INC ▽ DEC, and then press SET. | |
| ③ | Select all data using or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select all data using 0/STATUS to 9/F (number keys), and then press SET. | <br>**Source:**<br>Select the copy source media.<br><br>**Destination:**<br>Displays the copy destination media.<br>(When the copy source media is selected, the copy destination media is selected automatically.) |
| ④ | Select **EXECUTE** using or △ INC ▽ DEC, and then press SET to complete the copying. | |

CAUTION

Avoid removing the USB memory device or turning off the power while data is being copied.
Otherwise the USB memory and its data may be damaged.

## 9.1.8 Erasing programs

Program data can be erased. Multiple data can be erased at the same time.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU, or △ INC ▽ DEC, and then press SET. | |

| | | |
|---|---|---|
| ② | Select **ERASE: Program** using ◎ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select the programs using ◎ or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the programs using 0/STATUS to 9/F (number keys), and then press SET. | <br>Select the range of the program numbers to be erased and the media. |
| ④ | Select **EXECUTE** using ◎ or △ INC ▽ DEC, and then press SET to erase the programs. | |

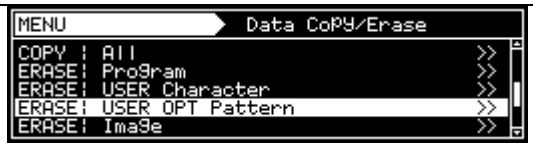
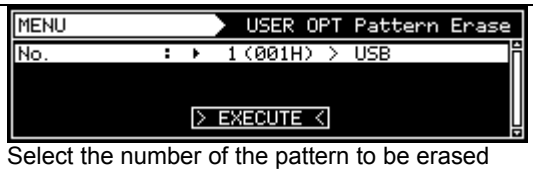
## 9.1.9 Erasing user characters

User character pattern data can be erased.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU ◎ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **ERASE: USER Character** using ◎ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select the characters using ◎ or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br>Select the characters using 0/STATUS to 9/F (number keys), and then press SET. | <br>Select the character code (such as e0H) to be erased and the media. |
| ④ | Select **EXECUTE** using ◎ or △ INC ▽ DEC, and then press SET to erase the user characters. | |

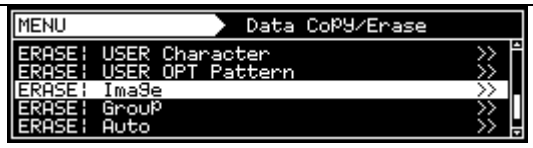
## 9.1.10 Erasing user optional patterns

User optional pattern data can be erased.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU<br>or INC DEC, and then press SET. | |
| ② | Select **ERASE: USER OPT Pattern** using<br>or INC DEC, and then press SET. |  |
| ③ | Select the user optional pattern number using<br>or INC DEC, and then press SET.<br><br>Alternatively:<br>Select the user optional pattern number using<br>0/STATUS to 9/F (number keys), and then<br>press SET. |  <br>Select the number of the pattern to be erased and the media. |
| ④ | Select **EXECUTE** using or INC DEC,<br>and then press SET to erase the user optional pattern. | |

## 9.1.11 Erasing images

Image pattern data can be erased.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU<br>or INC DEC, and then press SET. | |
| ② | Select **ERASE: Image** using or INC<br>DEC, and then press SET. |  |
| ③ | Select the image number using or<br>INC DEC, and then press SET.<br><br>Alternatively:<br>Select the image number using 0/STATUS to<br>9/F (number keys), and then press SET. | <br>Select the number of the image to be erased and the media. |

| | | |
|---|---|---|
| ④ | Select **EXECUTE** using ◯ or △ INC ▽ DEC, and then press SET. | |

## 9.1.12 Erasing groups

Group pattern data can be erased. Multiple data can be erased at the same time.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU ▭ ⇨ ◯ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **ERASE: Group** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select the group number using ◯ or △ INC ▽ DEC, and then press SET.<br><br>Alternatively:<br><br>Select the group number using 0/STATUS to 9/F (number keys), and then press SET. | <br>Select the range of the numbers of the groups to be erased and the media. |
| ④ | Select **EXECUTE** using ◯ or △ INC ▽ DEC, and then press SET to erase the group. | |

## 9.1.13 Erasing auto executions

Auto execution data can be erased.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU ▭ ⇨ ◯ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **ERASE: Auto** using ◯ or △ INC ▽ DEC, and then press SET. | |

| | | |
|---|---|---|
| ③ | Select the media using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the media using 0/STATUS to 9/F (number keys), and then press SET. | <br>Select the media whose data is to be erased. |
| ④ | Select **EXECUTE** using ◯ or △ INC ▽ DEC, and then press SET to erase the automatic executions. | |

## 9.1.14 Erasing all data

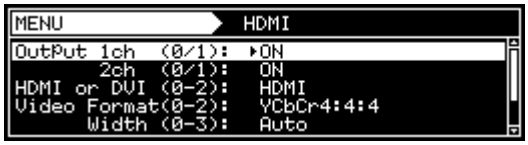
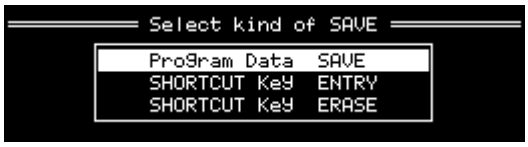
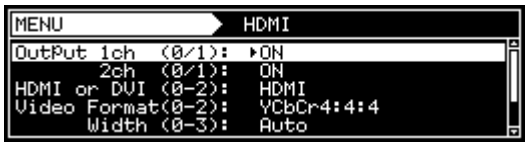
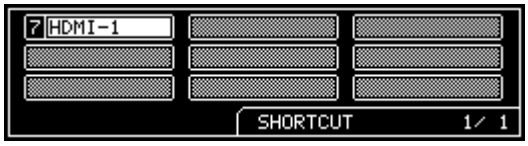
All data can be erased together.

| | | |
|---|---|---|
| ① | Select **Data Copy/Erase** using MENU ▭ ⇨ ◯ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **ERASE: All** using ◯ or △ INC ▽ DEC, and then press SET. | |
| ③ | Select the media using ◯ or △ INC ▽ DEC, and then press SET.<br>Alternatively:<br>Select the media with the data using 0/STATUS to 9/F (number keys), and then press SET. | <br>Select the media whose data is to be erased. |
| ④ | Select **EXECUTE** using ◯ or △ INC ▽ DEC, and then press SET to erase all data. | |

## 9.2 Short-cut keys

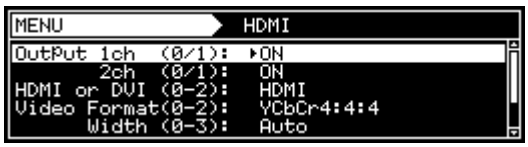
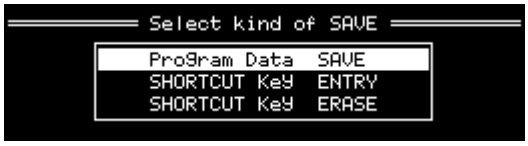
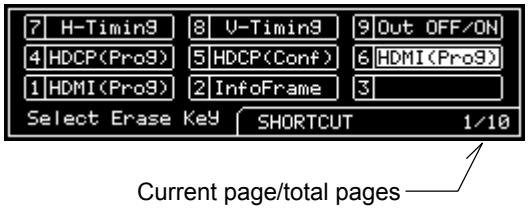
It is possible to set up to any of 90 frequently used menu screens so that they can be called by pressing the short-cut keys.

**Registering a short-cut key**

| | | |
|---|---|---|
| ① | Display the menu screen to be registered as a short-cut, and then press SAVE.<br><br>In the example given here, the HDMI setting screen is registered. |  |
| ② | Select **SHORTCUT Key ENTRY** using ◯ or △ INC ▽ DEC, and then press SET. |  |
| ③ | Select the position where the screen is to be registered using ◯ or △ INC ▽ DEC (for page selection), and then press SET.<br><br>In this example, the screen is saved to 7 on the first page.<br>* The selected positions 1 to 9 correspond to 1 to 9/F. | <br>Current page/total pages |
| ④ | Set the name of the registered screen.<br>To use the name already displayed, select **OK**, and then press SET.<br><br>To change the name:<br>Change the name using ◯ SHIFT △ INC ▽ DEC, select **OK**, and then press SET.<br><br>The new name in this example is HDMI-1.<br><br>When the setting is saved, “Save Completed” is displayed and the display returns to the screen in ① above. | <br>  |
| ⑤ | **Calling a menu screen with SHORTCUT**<br>Press SHORT CUT to display the SHORTCUT screen.<br><br>HDMI-1, which is the registered screen, is now registered to shortcut 7 on the first page.<br><br>Use 7/D, or alternatively use ◯ △ INC or ▽ DEC (for page selection) and then press SET to display the HDMI setting screen. |  <br>Current page/last registered page |

* The short-cut key function may be disabled on some display screens. Use ESC to return to the previous screen, and press the keys again.

**Deleting a short-cut key**

| | | |
|---|---|---|
| ① | To delete a short-cut, display the menu screen, and then press SAVE.<br>In the example given here, the HDMI setting screen is registered. |  |
| ② | Select **SHORTCUT Key ERASE** using or △ INC ▽ DEC, and then press SET. |  |
| ③ | Select the short-cut to be deleted using or △ INC ▽ DEC (for page selection), and then press SET.<br>In this example, short-cut 6 on the first page is deleted. |  |
| ④ | Press SET to delete the short-cut.<br>Press ESC to cancel deletion. | |

## 9.3 Information

The main unit's version, serial number and other information can be displayed.

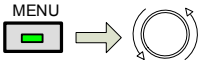
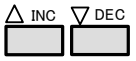
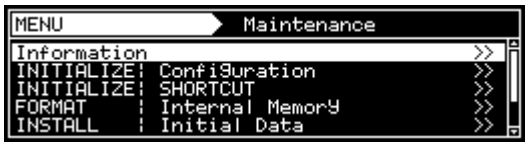
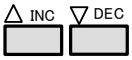
| | | |
|---|---|---|
| ① | Select **Maintenance** using MENU  or △ INC ▽ DEC  , and then press SET . | |
| ② | Select **Information**, and then press SET . |  |
| ③ | Scroll the display up or down using or △ INC ▽ DEC  . | |

**Table of display items**

| Example of display | Description |
|---|---|
| TYPE : VG-882-A | Product name |
| SERIAL : *******（3505001） | Serial number of main unit |
| LICENSE : －（Macrovision） | Usable optional functions |
| FPGA Ver. : *.**（1.00） | Hardware version |
| F/W Ver. : *.***（1.000） | Firmware version |
| BOOT *.***（1.001） | Boot data version |
| | |
| - BOARD ---------- | (The following is the board information.) |
| MAIN) SERIAL : *******（3505001） | Serial number of main board |
| REVISION : *（C） | Board revision of main board |
| USER ADJUSTMENT VALUE: | User adjustment values (dependent on the unit type) |
| VGA = +0/+0/+0 | VGA output adjustment value |
| YPbPr/D5 = +0/+0/+0 | YPbPr/D5 output adjustment value |
| | |
| EXT）TYPE : TV Encorder | |
| SERIAL : *******（3505001） | Serial number of EXT board |
| REVISION : *（0） | Board revision of EXT board |
| USER ADJUSTMENT VALUE: | |
| CVBS, Y/C = +0 | CVBS and Y/C output adjustment value |
| RGB(SCART) = +0 | RGB (SCART) output adjustment value |
| - INTERNAL MEMORY ---------- | (The following is the internal memory information.) |
| Free Space : ***** KB（87110 KB） | |

# 9.4 Data initialization

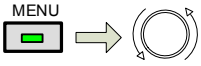
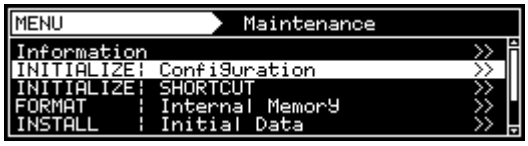
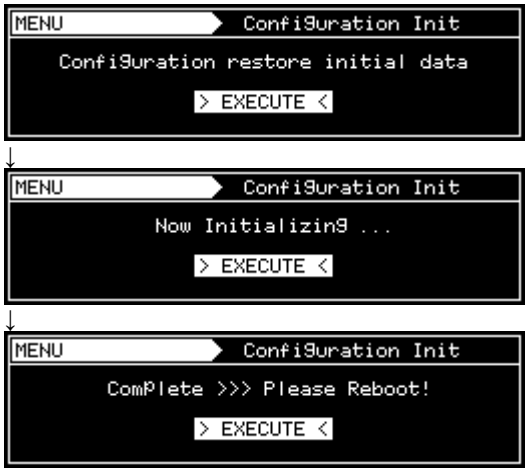
Initialization restores the system settings and short-cut data to the factory settings.

CAUTION

- Performing this operation initializes all data stored in the internal memory.
- The generator must be re-started after initialization.

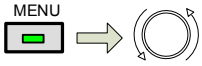
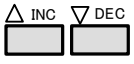
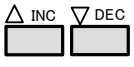
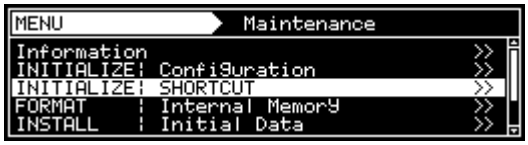
## 9.4.1 Initializing the system settings

This operation restores the system settings data to the factory settings.

| | | |
|---|---|---|
| ① | Select **Maintenance** using MENU  or △ INC ▽ DEC, and then press SET. | |
| ② | Select **INITIALIZE: Configuration** using or △ INC ▽ DEC, and then press SET. |  |
| ③ | Press SET to execute initialization.<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>Initialization is completed. |  |
| ④ | Cycle the power of the generator. | |

## 9.4.2 Initializing the short-cut data

This operation restores the short-cut data to the factory settings.

| | | |
|---|---|---|
| ① | Select **Maintenance** using MENU  or △ INC ▽ DEC  , and then press SET . | |
| ② | Select **INITIALIZE: SHORTCUT** using or △ INC ▽ DEC  , and then press SET . |  |
| ③ | Press SET to execute initialization.<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>:<br>Initialization is completed. | <br>↓<br> <br>↓<br> |
| ④ | Cycle the power of the generator. | |

# 9.5 Internal memory formatting and data installation

The following describes the procedure for formatting the internal memory.

Formatting the internal memory will delete the data required for the generator's operation, so the steps for data installation and firmware version updating must be taken after the memory has been formatted.

**Procedure**

1. Have the required data ready.
2. Format the internal memory. Refer to "**Formatting procedure**".
3. Turn on the power.
4. Install the data. Refer to "**Data installation procedure**".
5. Turn off the power.
6. Update the firmware version (partial update). Refer to "**Firmware version update procedure**".
7. Turn on the power.

**Required data**

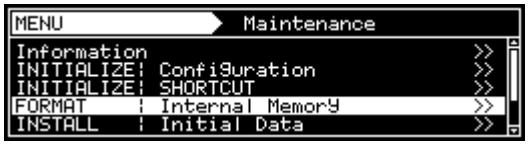
・Copy the data in the **InitialData** folder on the provided SP-8870 software installation CD to the USB memory and use this data.

・If the firmware version has been updated at some point after the generator was purchased, the data of the updated version will be required.

Further action must be taken in the following cases.
For details, contact your dealer or the Astrodesign Sales Department.

- When using APCD patterns (optional)
  APDC patterns are not included in the data provided with the SP-8870 software.
- When the VG generator is not a standard model
  The data provided with the SP-8870 software is for a standard model.

**Formatting procedure**

| | | |
|---|---|---|
| ① | Select **Maintenance** using MENU → ◯ or △ INC ▽ DEC, and then press SET. | |
| ② | Select **FORMAT: Internal Memory** using ◯ or △ INC ▽ DEC, and then press SET. |  |
| ③ | Initiate formatting by pressing SET. | |
| ④ | A confirmation message is displayed.<br>To continue with formatting, select SET.<br>To cancel formatting, select ESC.<br>:<br>:<br>Formatting is completed. | <br>↓<br>Now Formatting ...<br>↓<br>Complete >>> Please Reboot! |
| ⑤ | Cycle the power, and then install the data. | |

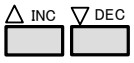
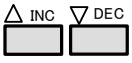
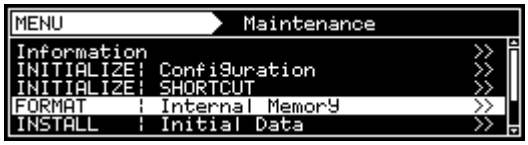
**Data installation procedure**

Preparing the data

Copy the data on the provided SP-8870 software installation CD to the USB memory (in drive B:).
There are multiple files.

A:\InitialData\VG882-A\ ＊.＊ → B:\ ＊.＊

Main unit operations

| | | |
|---|---|---|
| ① | Connect the USB memory device containing the copied data. | |
| ② | Select **Maintenance** using MENU or △ INC ▽ DEC  , and then press SET . | |
| ③ | Select **INITIALIZE: Initial Data** using or △ INC ▽ DEC  , and then press SET . |  MENU Maintenance<br>Information<br>INITIALIZE¦ Confi9uration<br>INITIALIZE¦ SHORTCUT<br>FORMAT ¦ Internal Memory<br>INSTALL ¦ Initial Data |
| ④ | Initiate data installation by pressing SET .<br>:<br>:<br>:<br>:<br>:<br>:<br>Data installation is completed. | <br>↓<br>Now Installing ...<br>↓<br>Complete<br>↓<br>Original display (EXECUTE) |
| ⑤ | Cycle the power, and then update the firmware version (partial). | |

**Firmware version update procedure**

Use the data that was prepared at the data installation stage.
If the firmware version has been updated at some point after the generator was purchased, copy the data of the updated version to the USB memory.

① Connect the USB memory device to the main unit.

② Turn on the power while holding down △ INC and SET .

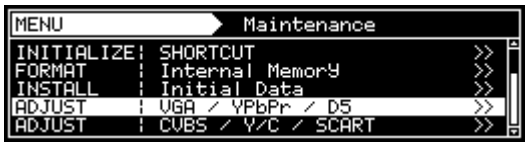
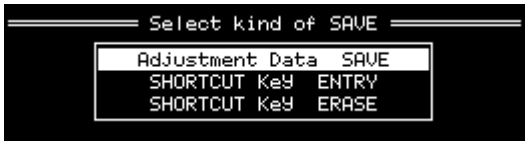
③ The message “FPGA/Firmware Version Up” is displayed. Wait a few moments.
④ After the message “End. Please reboot!!” is displayed and a buzzer sounds, cycle the power of the generator.

# 9.6 Adjustments

## 9.6.1 Adjusting the video levels of the component output

The video levels of the component output can be adjusted. After adjusting the levels, save the data.

*** YPbPr output and D5 output share the same adjustment value.**

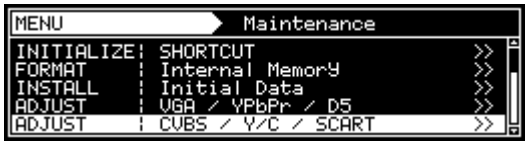
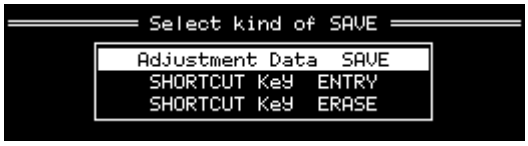
| | | |
|---|---|---|
| ① | ・Display the raster “white” pattern (No.1121) using any timing data.<br>・Check that the digital levels are the maximum values. (Refer to “**5.1.8 Setting the digital video level**”.)<br>・Set the analog levels to the desired values. (Refer to “**5.1.7 Setting the analog video level**”.) | |
| ② | Select **Maintenance** using MENU, or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **ADJUST: VGA/YPbPR/D5** using, or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select the items to be set using, and then while monitoring the actual level with an oscilloscope or other measuring device, adjust the value set in ① up using △ INC or down using ▽ DEC.<br>* Perform this step for R, G, and B.<br>* VGA and YPbPr (D5) can be adjusted independently of each other. | |
| ⑤ | Press SAVE, select **Adjustment Data SAVE**, and then press SET.<br>The message “Save Completed” is displayed, and then the display returns to the screen in ⑤ above. |  |

## 9.6.2 Adjusting the video levels of the composite output

The video levels of the composite output can be adjusted. After adjusting the levels, save the data.

*** The adjustment values for CVBS and Y/C are also applied to CVBS and Y/C for SCART output.**

*** The RGB adjustment value is applied only to SCART output.**

| | | |
|---|---|---|
| ① | ・Display the raster “white” pattern (No.1121) using any timing data.<br>・Check that the digital levels are the maximum values. (Refer to “**5.1.8 Setting the digital video level**”.)<br>・Set the analog levels to the desired values. (Refer to “**5.1.7 Setting the analog video level**”.) | |
| ② | Select **Maintenance** using MENU ⇨ ◯<br>or △ INC ▽ DEC, and then press SET. | |
| ③ | Select **ADJUST: CVBS/Y/C/SCART** using<br>◯ or △ INC ▽ DEC, and then press SET. |  |
| ④ | Select the items to be set using ◯,<br>and then while monitoring the actual level with an oscilloscope or other measuring device,<br>adjust the value set in ① up using △ INC or<br>down using ▽ DEC.<br>* CVBS and Y/C share the same adjustment value.<br>* R, G, and B share the same adjustment value. | |
| ⑤ | Press SAVE, select **Adjustment Data SAVE**,<br>and then press SET. |  |
| | The message “Save Completed” is displayed, and then the display returns to the screen in ⑤ above. | |

# 10 Internal data

## 10.1 Program data

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1001 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | EIA640x480p@59.94 | 100%/100% color bars, horizontal direction | Color Bar 100/100-H |
| 1002 | 31.50 | 60.00 | 25.200 | 640x480 | Prog | N | N | ANALOG | RGB | EIA640x480p@60 | 100%/75% color bars, horizontal direction | Color Bar 100/75-H |
| 1003 | 31.47 | 59.94 | 27.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480p@59.94 | 75%/75% color bars, horizontal direction | Color Bar 75/75-H |
| 1004 | 31.50 | 60.00 | 27.027 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480p@60 | SMPTE color bars | Color Bar SMPTE |
| 1005 | 31.47 | 59.94 | 27.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480pW@59.94 | RGBW color bars, vertical direction | Color Bar RGBW-V |
| 1006 | 31.50 | 60.00 | 27.027 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480pW@60 | xvYCC 4% color bars | Color Bar xvYCC 4% |
| 1007 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA1280x720p@59.94 | xvYCC 8% color bars | Color Bar xvYCC 8% |
| 1008 | 45.00 | 60.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA1280x720p@60 | xvYCC 12% color bars | Color Bar xvYCC 12% |
| 1009 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1920x1080i@59.94 | 100%/100% color bars, horizontal direction 2 | Color Bar 100/100-H2 |
| 1010 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1920x1080i@60 | | |
| 1011 | 15.73 | 59.94 | 27.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480i@59.94 | | |
| 1012 | 15.75 | 60.00 | 27.028 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480i@60 | | |
| 1013 | 15.73 | 59.94 | 27.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480iW@59.94 | | |
| 1014 | 15.75 | 60.00 | 27.028 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480iW@60 | | |
| 1015 | 15.73 | 60.05 | 27.000 | 1440x240 | Prog | N | N | ANALOG | YPbPr | EIA1440x240p@59.94 | | |
| 1016 | 15.75 | 60.12 | 27.028 | 1440x240 | Prog | N | N | ANALOG | YPbPr | EIA1440x240p@60 | | |
| 1017 | 15.73 | 59.83 | 27.000 | 1440x240 | Prog | N | N | ANALOG | YPbPr | EIA1440x240p@59.94 | | |
| 1018 | 15.75 | 59.89 | 27.028 | 1440x240 | Prog | N | N | ANALOG | YPbPr | EIA1440x240p@60 | | |
| 1019 | 15.73 | 60.05 | 27.000 | 1440x240 | Prog | N | N | ANALOG | YPbPr | EIA1440x240pW@59.94 | | |
| 1020 | 15.75 | 60.12 | 27.028 | 1440x240 | Prog | N | N | ANALOG | YPbPr | EIA1440x240pW@60 | | |

内蔵プログラムデータ No. 1001～1020

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1021 | 15.73 | 59.83 | 27.000 | 1440x240 | Prog | N | N | ANALOG | YPbPr | EIA1440x240pW@59.94 | | |
| 1022 | 15.75 | 59.89 | 27.028 | 1440x240 | Prog | N | N | ANALOG | YPbPr | EIA1440x240pW@60 | | |
| 1023 | 15.73 | 59.94 | 54.000 | 2880x480 | Int | N | N | ANALOG | YPbPr | EIA2880x480i@59.94 | | |
| 1024 | 15.75 | 60.00 | 54.054 | 2880x480 | Int | N | N | ANALOG | YPbPr | EIA2880x480i@60 | | |
| 1025 | 15.73 | 59.94 | 54.000 | 2880x480 | Int | N | N | ANALOG | YPbPr | EIA2880x480iW@59.94 | | |
| 1026 | 15.75 | 60.00 | 54.054 | 2880x480 | Int | N | N | ANALOG | YPbPr | EIA2880x480iW@60 | | |
| 1027 | 15.73 | 60.05 | 54.000 | 2880x240 | Prog | N | N | ANALOG | YPbPr | EIA2880x240p@59.94 | | |
| 1028 | 15.75 | 60.11 | 54.054 | 2880x240 | Prog | N | N | ANALOG | YPbPr | EIA2880x240p@60 | | |
| 1029 | 15.73 | 59.83 | 54.000 | 2880x240 | Prog | N | N | ANALOG | YPbPr | EIA2880x240p@59.94 | | |
| 1030 | 15.75 | 59.89 | 54.054 | 2880x240 | Prog | N | N | ANALOG | YPbPr | EIA2880x240p@59.94 | | |
| 1031 | 15.73 | 60.05 | 54.000 | 2880x240 | Prog | N | N | ANALOG | YPbPr | EIA2880x240pW@59.94 | Gray scale, horizontal direction (4 steps) | Gray Scale H-4step |
| 1032 | 15.75 | 60.11 | 54.054 | 2880x240 | Prog | N | N | ANALOG | YPbPr | EIA2880x240pW@60 | Gray scale, horizontal direction (8 steps) | Gray Scale H-8step |
| 1033 | 15.73 | 59.83 | 54.000 | 2880x240 | Prog | N | N | ANALOG | YPbPr | EIA2880x240pW@59.94 | Gray scale, horizontal direction (16 steps) | Gray Scale H-16step |
| 1034 | 15.75 | 59.89 | 54.054 | 2880x240 | Prog | N | N | ANALOG | YPbPr | EIA2880x240pW@60 | Gray scale, horizontal direction (32 steps) | Gray Scale H-32step |
| 1035 | 31.47 | 59.94 | 54.000 | 1440x480 | Prog | N | N | ANALOG | YPbPr | EIA1440x480p@59.94 | Gray scale, horizontal direction (64 steps) | Gray Scale H-64step |
| 1036 | 31.50 | 60.00 | 54.054 | 1440x480 | Prog | N | N | ANALOG | YPbPr | EIA1440x480p@60 | Gray scale, horizontal direction (128 steps) | Gray Scale H-128step |
| 1037 | 31.47 | 59.94 | 54.000 | 1440x480 | Prog | N | N | ANALOG | YPbPr | EIA1440x480pW@59.94 | Gray scale, horizontal direction (256 steps) | Gray Scale H-256step |
| 1038 | 31.50 | 60.00 | 54.054 | 1440x480 | Prog | N | N | ANALOG | YPbPr | EIA1440x480pW@60 | Gray scale, vertical direction (4 steps) | Gray Scale V-4step |
| 1039 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1920x1080p@59.94 | Gray scale, vertical direction (8 steps) | Gray Scale V-8step |
| 1040 | 67.50 | 60.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1920x1080p@60 | Gray scale, vertical direction (16 steps) | Gray Scale V-16step |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1041 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | EIA720x576p@50 | Gray scale, vertical direction (32 steps) | Gray Scale V-32step |
| 1042 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | EIA720x576pW@50 | Gray scale, vertical direction (64 steps) | Gray Scale V-64step |
| 1043 | 37.50 | 50.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA1280x720p@50 | Gray scale, vertical direction (128 steps) | Gray Scale V-128step |
| 1044 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1920x1080i@50 | Gray scale, vertical direction (256 steps) | Gray Scale V-256step |
| 1045 | 15.63 | 50.00 | 27.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | EIA1440x576i@50 | Linear ramp, horizontal direction | Ramp Linear-H |
| 1046 | 15.63 | 50.00 | 27.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | EIA1440x576iW@50 | Linear ramp, vertical direction | Ramp Linear-V |
| 1047 | 15.63 | 50.08 | 27.000 | 1440x288 | Prog | N | N | ANALOG | YPbPr | EIA1440x288p@50 | Linear ramp, horizontal and vertical directions | Ramp Linear-HV |
| 1048 | 15.63 | 49.92 | 27.000 | 1440x288 | Prog | N | N | ANALOG | YPbPr | EIA1440x288p@50 | | Ramp Linear-H RGBW-H |
| 1049 | 15.63 | 49.76 | 27.000 | 1440x288 | Prog | N | N | ANALOG | YPbPr | EIA1440x288p@50 | | Ramp Linear-V RGBW-V |
| 1050 | 15.63 | 50.08 | 27.000 | 1440x288 | Prog | N | N | ANALOG | YPbPr | EIA1440x288pW@50 | | Ramp Linear-H RGBW-V |
| 1051 | 15.63 | 49.92 | 27.000 | 1440x288 | Prog | N | N | ANALOG | YPbPr | EIA1440x288pW@50 | Turn ramp | Ramp-H 1Level/dot |
| 1052 | 15.63 | 49.76 | 27.000 | 1440x288 | Prog | N | N | ANALOG | YPbPr | EIA1440x288pW@50 | | |
| 1053 | 15.63 | 50.00 | 54.000 | 2880x576 | Int | N | N | ANALOG | YPbPr | EIA2880x576i@50 | | Ramp Linear H:G V:R |
| 1054 | 15.63 | 50.00 | 54.000 | 2880x576 | Int | N | N | ANALOG | YPbPr | EIA2880x576iW@50 | | Ramp Linear H:B V:R |
| 1055 | 15.63 | 50.08 | 54.000 | 2880x288 | Prog | N | N | ANALOG | YPbPr | EIA2880x288p@50 | | Ramp Linear H:B V:G |
| 1056 | 15.63 | 49.92 | 54.000 | 2880x288 | Prog | N | N | ANALOG | YPbPr | EIA2880x288p@50 | | Ramp Linear H:R V:G |
| 1057 | 15.63 | 49.76 | 54.000 | 2880x288 | Prog | N | N | ANALOG | YPbPr | EIA2880x288p@50 | | Ramp Linear H:R V:B |
| 1058 | 15.63 | 50.08 | 54.000 | 2880x288 | Prog | N | N | ANALOG | YPbPr | EIA2880x288pW@50 | | Ramp Linear H:G V:B |
| 1059 | 15.63 | 49.92 | 54.000 | 2880x288 | Prog | N | N | ANALOG | YPbPr | EIA2880x288pW@50 | 128-step gray scale ramp (top: R → L, bottom: R ← L) | Ramp 128 R->L L->R |
| 1060 | 15.63 | 49.76 | 54.000 | 2880x288 | Prog | N | N | ANALOG | YPbPr | EIA2880x288pW@50 | 256-step gray scale ramp (top: R → L, bottom: R ← L) | Ramp 256 R->L L->R |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1061 | 31.25 | 50.00 | 54.000 | 1440x576 | Prog | N | N | ANALOG | YPbPr | EIA1440x576p@50 | | |
| 1062 | 31.25 | 50.00 | 54.000 | 1440x576 | Prog | N | N | ANALOG | YPbPr | EIA1440x576pW@50 | | |
| 1063 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1920x1080p@50 | | |
| 1064 | 26.97 | 23.98 | 74.176 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1920x1080p@23.97 | | |
| 1065 | 27.00 | 24.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1920x1080p@24 | | |
| 1066 | 28.13 | 25.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1920x1080p@25 | | |
| 1067 | 33.72 | 29.97 | 74.176 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1920x1080p@29.97 | | |
| 1068 | 33.75 | 30.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1920x1080p@30 | | |
| 1069 | 31.47 | 59.94 | 108.000 | 2880x480 | Prog | N | N | ANALOG | YPbPr | EIA2880x480p@59.94 | | |
| 1070 | 31.50 | 60.00 | 108.108 | 2880x480 | Prog | N | N | ANALOG | YPbPr | EIA2880x480p@60 | | |
| 1071 | 31.47 | 59.94 | 108.000 | 2880x480 | Prog | N | N | ANALOG | YPbPr | EIA2880x480pW@59.94 | Linear ramp, horizontal direction + scroll | Ramp Linear-H Scroll |
| 1072 | 31.50 | 60.00 | 108.108 | 2880x480 | Prog | N | N | ANALOG | YPbPr | EIA2880x480pW@60 | Linear ramp, vertical direction + scroll | Ramp Linear-V Scroll |
| 1073 | 31.25 | 50.00 | 108.000 | 2880x576 | Prog | N | N | ANALOG | YPbPr | EIA2880x576p@50 | Linear ramp, horizontal and vertical directions + scroll | Ramp Linear-HV Scroll |
| 1074 | 31.25 | 50.00 | 108.000 | 2880x576 | Prog | N | N | ANALOG | YPbPr | EIA2880x576pW@50 | | |
| 1075 | 31.25 | 50.00 | 72.000 | 1920x1080 | Int | P | N | HDTV1250(AUS) | YPbPr | EIA1920x1080i@50 | | |
| 1076 | 56.25 | 100.00 | 148.500 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1920x1080i@100 | | |
| 1077 | 75.00 | 100.00 | 148.500 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA1280x720p@100 | | |
| 1078 | 62.50 | 100.00 | 54.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | EIA720x576p@100 | | |
| 1079 | 62.50 | 100.00 | 54.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | EIA720x576pW@100 | | |
| 1080 | 31.25 | 100.00 | 54.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | EIA1440x576i@100 | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1081 | 31.25 | 100.00 | 54.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | EIA1440x576iW@100 | | |
| 1082 | 67.43 | 119.88 | 148.352 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1920x1080i@119.88 | | |
| 1083 | 67.50 | 120.00 | 148.500 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1920x1080i@120 | | |
| 1084 | 89.91 | 119.88 | 148.352 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA1280x720p@119.88 | | |
| 1085 | 90.00 | 120.00 | 148.500 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA1280x720p@120 | | |
| 1086 | 62.94 | 119.88 | 54.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480p@119.88 | | |
| 1087 | 63.00 | 120.00 | 54.054 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480p@120 | | |
| 1088 | 62.94 | 119.88 | 54.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480pW@119.88 | | |
| 1089 | 63.00 | 120.00 | 54.054 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480pW@120 | | |
| 1090 | 31.47 | 119.88 | 54.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480i@119.88 | | |
| 1091 | 31.50 | 120.00 | 54.054 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480i@120 | | |
| 1092 | 31.47 | 119.88 | 54.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480iW@119.88 | | |
| 1093 | 31.50 | 120.00 | 54.054 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480iW@120 | | |
| 1094 | 125.00 | 200.00 | 108.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | EIA720x576p@200 | | |
| 1095 | 125.00 | 200.00 | 108.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | EIA720x576pW@200 | | |
| 1096 | 62.50 | 200.00 | 108.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | EIA1440x576i@200 | | |
| 1097 | 62.50 | 200.00 | 108.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | EIA1440x576iW@200 | | |
| 1098 | 125.87 | 239.76 | 108.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480p@239.76 | | |
| 1099 | 126.00 | 240.00 | 108.108 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480p@240 | | |
| 1100 | 125.87 | 239.76 | 108.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480pW@239.76 | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1101 | 126.00 | 240.00 | 108.108 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA720x480pW@240 | Multi burst 100% | Multi Burst 100% |
| 1102 | 62.94 | 239.76 | 108.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480i@239.76 | Multi burst 50% | Multi Burst 50% |
| 1103 | 63.00 | 240.00 | 108.108 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480i@240 | Sweep pattern | Sweep |
| 1104 | 62.94 | 239.76 | 108.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480iW@239.76 | | |
| 1105 | 63.00 | 240.00 | 108.108 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA1440x480iW@240 | | |
| 1106 | 18.00 | 24.00 | 59.400 | 1280x720 | Prog | P | P | HDTV720 | YpbPr | EIA1280x720p@24 | | |
| 1107 | 18.75 | 25.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA1280x720p@25 | | |
| 1108 | 22.50 | 30.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YpbPr | EIA1280x720p@30 | | |
| 1109 | 112.50 | 100.00 | 297.000 | 1920x1080 | Prog | P | P | HDTV1080 | YpbPr | EIA1920x1080p@100 | | |
| 1110 | 135.00 | 120.00 | 297.000 | 1920x1080 | Prog | P | P | HDTV1080 | YpbPr | EIA1920x1080p@120 | | |
| 1111 | | | | | | | | | | | OPT38 (SMPTE RP-133) | SMPTE RP-133 |
| 1112 | | | | | | | | | | | OPT39 (SMPTE color version) | SMPTE RP-133+Color |
| 1113 | | | | | | | | | | | Monoscope | Monoscope |
| 1114 | | | | | | | | | | | Philips pattern | Philips |
| 1115 | | | | | | | | | | | Chinese monoscope | China Monoscope |
| 1116 | | | | | | | | | | | APDC1 | APDC1 |
| 1117 | | | | | | | | | | | APDC2 | APDC2 |
| 1118 | | | | | | | | | | | APDC3 | APDC3 |
| 1119 | | | | | | | | | | | APDC4 | APDC4 |
| 1120 | | | | | | | | | | | | |

**＊ Program No. 1116-1119 needs licence, without which these programs will show licence error message. Please ask us for purchase of the licence.**

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1121 | | | | | | | | | | | White solid | Raster White |
| 1122 | | | | | | | | | | | Red solid | Raster Red |
| 1123 | | | | | | | | | | | Green solid | Raster Green |
| 1124 | | | | | | | | | | | Blue solid | Raster Blue |
| 1125 | | | | | | | | | | | Black solid | Raster Black |
| 1126 | | | | | | | | | | | 50% solid gray | Raster 50%Gray |
| 1127 | | | | | | | | | | | Magenta solid | Raster Magenta |
| 1128 | | | | | | | | | | | Cyan solid | Raster Cyan |
| 1129 | | | | | | | | | | | Yellow solid | Raster Yellow |
| 1130 | | | | | | | | | | | | |
| 1131 | | | | | | | | | | | | |
| 1132 | | | | | | | | | | | | |
| 1133 | | | | | | | | | | | | |
| 1134 | | | | | | | | | | | | |
| 1135 | | | | | | | | | | | | |
| 1136 | | | | | | | | | | | | |
| 1137 | | | | | | | | | | | | |
| 1138 | | | | | | | | | | | | |
| 1139 | | | | | | | | | | | | |
| 1140 | | | | | | | | | | | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1141 | | | | | | | | | | | Overscan pattern | Over Scan |
| 1142 | | | | | | | | | | | AFD pattern 4:3 Type 0 | AFD 4:3 Type0 |
| 1143 | | | | | | | | | | | AFD pattern 4:3 Type 1 | AFD 4:3 Type1 |
| 1144 | | | | | | | | | | | AFD pattern 4:3 Type 2 | AFD 4:3 Type2 |
| 1145 | | | | | | | | | | | AFD pattern 4:3 Type 3 | AFD 4:3 Type3 |
| 1146 | | | | | | | | | | | AFD pattern 4:3 Type 4 | AFD 4:3 Type4 |
| 1147 | | | | | | | | | | | AFD pattern 4:3 Type 5 | AFD 4:3 Type5 |
| 1148 | | | | | | | | | | | AFD pattern 4:3 Type 6 | AFD 4:3 Type6 |
| 1149 | | | | | | | | | | | AFD pattern 4:3 Type 7 | AFD 4:3 Type7 |
| 1150 | | | | | | | | | | | AFD pattern 4:3 Type 8 | AFD 4:3 Type8 |
| 1151 | 31.47 | 59.94 | 27.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA480p59-YCC-12 | AFD pattern 4:3 Type 9 | AFD 4:3 Type9 |
| 1152 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1080i59-YCC-12 | AFD pattern 4:3 Type 10 | AFD 4:3 Type10 |
| 1153 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA720p59-YCC-12 | AFD pattern 4:3 Type 11 | AFD 4:3 Type11 |
| 1154 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | EIA480p59-YCC-12 | AFD pattern 4:3 Type 12 | AFD 4:3 Type12 |
| 1155 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p59-YCC-12 | AFD pattern 16:9 Type 0 | AFD 16:9 Type0 |
| 1156 | 15.73 | 59.94 | 27.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA480i59-YCC-12 | AFD pattern 16:9 Type 1 | AFD 16:9 Type1 |
| 1157 | 27.00 | 24.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p24-YCC-12 | AFD pattern 16:9 Type 2 | AFD 16:9 Type2 |
| 1158 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | EIA576p50-YCC-12 | AFD pattern 16:9 Type 3 | AFD 16:9 Type3 |
| 1159 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1080i50-YCC-12 | AFD pattern 16:9 Type 4 | AFD 16:9 Type4 |
| 1160 | 37.50 | 50.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA720p50-YCC-12 | AFD pattern 16:9 Type 5 | AFD 16:9 Type5 |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1161 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p50-YCC-12 | AFD pattern 16:9 Type 6 | AFD 16:9 Type6 |
| 1162 | 15.63 | 50.00 | 27.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | EIA576i50-YCC-12 | AFD pattern 16:9 Type 7 | AFD 16:9 Type7 |
| 1163 | 28.13 | 25.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p25-YCC-12 | AFD pattern 16:9 Type 8 | AFD 16:9 Type8 |
| 1164 | | | | | | | | | | | AFD pattern 16:9 Type 9 | AFD 16:9 Type9 |
| 1165 | | | | | | | | | | | AFD pattern 16:9 Type 10 | AFD 16:9 Type10 |
| 1166 | | | | | | | | | | | AFD pattern 16:9 Type 11 | AFD 16:9 Type11 |
| 1167 | | | | | | | | | | | AFD pattern 16:9 Type 12 | AFD 16:9 Type12 |
| 1168 | | | | | | | | | | | | |
| 1169 | | | | | | | | | | | | |
| 1170 | | | | | | | | | | | | |
| 1171 | 31.47 | 59.94 | 27.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | EIA480p59-RGB-12 | | |
| 1172 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1080i59-RGB-12 | | |
| 1173 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA720p59-RGB-12 | | |
| 1174 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | EIA480p59-RGB-12 | | |
| 1175 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p59-RGB-12 | | |
| 1176 | 15.73 | 59.94 | 27.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | EIA480i59-RGB-12 | | |
| 1177 | 27.00 | 24.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p24-RGB-12 | | |
| 1178 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | EIA576p50-RGB-12 | | |
| 1179 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1080i50-RGB-12 | | |
| 1180 | 37.50 | 50.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA720p50-RGB-12 | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1181 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p50-RGB-12 | | |
| 1182 | 15.63 | 50.00 | 27.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | EIA576i50-RGB-12 | | |
| 1183 | 28.13 | 25.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p25-RGB-12 | | |
| 1184 | | | | | | | | | | | | |
| 1185 | | | | | | | | | | | | |
| 1186 | | | | | | | | | | | | |
| 1187 | | | | | | | | | | | | |
| 1188 | | | | | | | | | | | | |
| 1189 | | | | | | | | | | | | |
| 1190 | | | | | | | | | | | | |
| 1191 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1080i59-YCC-12-xv | | |
| 1192 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA720p59-YCC-12-xv | | |
| 1193 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p59-YCC-12-xv | | |
| 1194 | 27.00 | 24.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p24-YCC-12-xv | | |
| 1195 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | EIA1080i50-YCC-12-xv | | |
| 1196 | 37.50 | 50.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | EIA720p50-YCC-12-xv | | |
| 1197 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p50-YCC-12-xv | | |
| 1198 | 28.13 | 25.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | EIA1080p25-YCC-12-xv | | |
| 1199 | | | | | | | | | | | | |
| 1200 | | | | | | | | | | | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1201 | 134.87 | 59.94 | 296.704 | 1920x2205 | Prog | P | P | ANALOG | YPbPr | 3D 1080p60 FramePack | 1-dot × 1-dot checker | Checker 1dot*1dot |
| 1202 | 112.50 | 50.00 | 297.000 | 1920x2205 | Prog | P | P | ANALOG | YPbPr | 3D 1080p50 FramePack | 2-dot × 1-dot checker | Checker 2dot*1dot |
| 1203 | 67.43 | 29.97 | 148.352 | 1920x2205 | Prog | P | P | ANALOG | YPbPr | 3D 1080p30 FramePack | 4-dot × 1-dot checker | Checker 4dot*1dot |
| 1204 | 53.95 | 23.98 | 148.352 | 1920x2205 | Prog | P | P | ANALOG | YPbPr | 3D 1080p24 FramePack | 4 × 4 checker | Checker 4*4 |
| 1205 | 67.43 | 29.97 | 148.352 | 1920x2228 | Prog | P | P | ANALOG | YPbPr | 3D 1080i60 FramePack | 8 × 8 checker | Checker 8*8 |
| 1206 | 56.25 | 25.00 | 148.500 | 1920x2228 | Prog | P | P | ANALOG | YPbPr | 3D 1080i50 FramePack | Sub-pixel checker | SubPixel |
| 1207 | 89.91 | 59.94 | 148.352 | 1280x1470 | Prog | P | P | ANALOG | YPbPr | 3D 720p60 FramePack | | |
| 1208 | 75.00 | 50.00 | 148.500 | 1280x1470 | Prog | P | P | ANALOG | YPbPr | 3D 720p50 FramePack | | |
| 1209 | 44.96 | 29.97 | 148.352 | 1280x1470 | Prog | P | P | ANALOG | YPbPr | 3D 720p30 FramePack | | |
| 1210 | 35.96 | 23.98 | 118.681 | 1280x1470 | Prog | P | P | ANALOG | YPbPr | 3D 720p24 FramePack | | |
| 1211 | 62.94 | 59.94 | 54.000 | 720x1005 | Prog | N | N | ANALOG | YPbPr | 3D 480p60 FramePack | | |
| 1212 | 31.47 | 29.97 | 54.000 | 1440x1028 | Prog | N | N | ANALOG | YPbPr | 3D 480i60 FramePack | | |
| 1213 | 62.50 | 50.00 | 54.000 | 720x1201 | Prog | N | N | ANALOG | YPbPr | 3D 576p50 FramePack | | |
| 1214 | 31.25 | 25.00 | 54.000 | 1440x1226 | Prog | N | N | ANALOG | YPbPr | 3D 576i50 FramePack | | |
| 1215 | 62.94 | 59.94 | 50.350 | 640x1005 | Prog | N | N | ANALOG | RGB | 3D VGAp60 FramePack | | |
| 1216 | | | | | | | | | | | | |
| 1217 | | | | | | | | | | | | |
| 1218 | | | | | | | | | | | | |
| 1219 | | | | | | | | | | | | |
| 1220 | | | | | | | | | | | | |

**＊ Program No. 1201-1215 needs licence to output 3D Vender Specific InfoFrame, without which these programs will show licence error message. Please ask us for purchase of the licence.**
**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1221 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p60 Side_half | Character list 7 × 9 | Character List 7*9 |
| 1222 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p50 Side_half | Character H ( 5 × 7 / 10 × 14 ) | Character all H5*7 |
| 1223 | 33.72 | 29.97 | 74.176 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p30 Side_half | Character H ( 7 × 9 / 14 × 18 ) | Character all H7*9 |
| 1224 | 26.97 | 23.98 | 74.176 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p24 Side_half | Character H ( 16 × 16 / 32 × 32 ) | Character all H16*16 |
| 1225 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i60 Side_half | Corner & center character H ( 5 × 7 / 10 × 14 ) | Chara Cor&Cen H5*7 |
| 1226 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i50 Side_half | Corner & center character H ( 7 × 9 / 14 × 18 ) | Chara Cor&Cen H7*9 |
| 1227 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p60 Side_half | Corner & center character H ( 16 × 16 / 32 × 32 ) | Chara Cor&Cen H16*16 |
| 1228 | 37.50 | 50.00 | 74.250 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p50 Side_half | Chinese character “BI” ( 7 × 9 / 64 × 64 ) | Chara all Chinese |
| 1229 | 22.48 | 29.97 | 74.176 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p30 Side_half | Character “me” 18 × 18 | Chara all me |
| 1230 | 17.98 | 23.98 | 59.341 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p24 Side_half | Character “me” 18 × 18 (VESA specifications) | Chara all me(VESA) |
| 1231 | 31.47 | 59.94 | 27.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | 3D 480p60 Side_half | | |
| 1232 | 15.73 | 59.94 | 27.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | 3D 480i60 Side_half | | |
| 1233 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | 3D 576p50 Side_half | | |
| 1234 | 15.63 | 50.00 | 27.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | 3D 576i50 Side_half | | |
| 1235 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | 3D VGAp60 Side_half | | |
| 1236 | | | | | | | | | | | | |
| 1237 | | | | | | | | | | | | |
| 1238 | | | | | | | | | | | | |
| 1239 | | | | | | | | | | | | |
| 1240 | | | | | | | | | | | | |

内蔵プログラムデータ：No. 1221～1240

**＊ Program No. 1221-1235 needs licence to output 3D Vender Specific InfoFrame, without which these programs will show licence error message. Please ask us for purchase of the licence.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1241 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p60 Top&Bot | Crosshatch pattern | Cross Hatch |
| 1242 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p50 Top&Bot | | |
| 1243 | 33.72 | 29.97 | 74.176 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p30 Top&Bot | | |
| 1244 | 26.97 | 23.98 | 74.176 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p24 Top&Bot | | |
| 1245 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i60 Top&Bot | | |
| 1246 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i50 Top&Bot | | |
| 1247 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p60 Top&Bot | | |
| 1248 | 37.50 | 50.00 | 74.250 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p50 Top&Bot | | |
| 1249 | 22.48 | 29.97 | 74.176 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p30 Top&Bot | | |
| 1250 | 17.98 | 23.98 | 59.341 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p24 Top&Bot | | |
| 1251 | 31.47 | 59.94 | 27.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | 3D 480p60 Top&Bot | H=20, V=20 dot pattern | Dot H=20,V=20 |
| 1252 | 15.73 | 59.94 | 27.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | 3D 480i60 Top&Bot | H=60, V=60 dot pattern | Dot H=60,V=60 |
| 1253 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | 3D 576p50 Top&Bot | | |
| 1254 | 15.63 | 50.00 | 27.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | 3D 576i50 Top&Bot | | |
| 1255 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | 3D VGAp60 Top&Bot | | |
| 1256 | | | | | | | | | | | | |
| 1257 | | | | | | | | | | | | |
| 1258 | | | | | | | | | | | | |
| 1259 | | | | | | | | | | | | |
| 1260 | | | | | | | | | | | | |

**＊ Program No. 1241-1225 needs licence to output 3D Vender Specific InfoFrame, without which these programs will show licence error message. Please ask us for purchase of the licence.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1261 | 67.43 | 59.94 | 296.704 | 3840x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p60 Side_full | Edge marker pattern | Edge Marker |
| 1262 | 56.25 | 50.00 | 297.000 | 3840x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p50 Side_full | Diagonal line pattern | Diagonal Line |
| 1263 | 33.72 | 29.97 | 148.352 | 3840x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p30 Side_full | Center marker pattern | Center Marker |
| 1264 | 26.97 | 23.98 | 148.352 | 3840x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p24 Side_full | | |
| 1265 | 33.72 | 59.94 | 148.352 | 3840x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i60 Side_full | | |
| 1266 | 28.13 | 50.00 | 148.500 | 3840x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i50 Side_full | | |
| 1267 | 44.96 | 59.94 | 148.352 | 2560x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p60 Side_full | | |
| 1268 | 37.50 | 50.00 | 148.500 | 2560x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p50 Side_full | | |
| 1269 | 22.48 | 29.97 | 148.352 | 2560x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p30 Side_full | | |
| 1270 | 17.98 | 23.98 | 118.681 | 2560x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p24 Side_full | | |
| 1271 | 31.47 | 59.94 | 54.000 | 1440x480 | Prog | N | N | ANALOG | YPbPr | 3D 480p60 Side_full | Circle (Format 0) | Circle Format0 |
| 1272 | 15.73 | 59.94 | 54.000 | 2880x480 | Int | N | N | ANALOG | YPbPr | 3D 480i60 Side_full | Circle (Format 1) | Circle Format1 |
| 1273 | 31.25 | 50.00 | 54.000 | 1440x576 | Prog | N | N | ANALOG | YPbPr | 3D 576p50 Side_full | Circle (Format 2) | Circle Format2 |
| 1274 | 15.63 | 50.00 | 54.000 | 2880x576 | Int | N | N | ANALOG | YPbPr | 3D 576i50 Side_full | Circle (Format 3) | Circle Format3 |
| 1275 | 31.47 | 59.94 | 50.350 | 1280x480 | Prog | N | N | ANALOG | RGB | 3D VGAp60 Side_full | Circle (Format 4) | Circle Format4 |
| 1276 | | | | | | | | | | | Circle (Format 5) | Circle Format5 |
| 1277 | | | | | | | | | | | Circle (Format 6) | Circle Format6 |
| 1278 | | | | | | | | | | | | |
| 1279 | | | | | | | | | | | | |
| 1280 | | | | | | | | | | | | |

内蔵プログラムデータ:No. 1261～1280

**＊ Program No. 1261-1275 needs licence to output 3D Vender Specific InfoFrame, without which these programs will show licence error message. Please ask us for purchase of the licence.**
**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1281 | | | | | | | | | | | Burst L → R | Burst L->R |
| 1282 | | | | | | | | | | | Burst L ← R | Burst L<-R |
| 1283 | | | | | | | | | | | Burst L ← C → R | Burst L<-C->R |
| 1284 | | | | | | | | | | | Burst L → C ← R | Burst L->C<-R |
| 1285 | | | | | | | | | | | Burst T → B | Burst T->B |
| 1286 | | | | | | | | | | | Burst T ← B | Burst T<-B |
| 1287 | | | | | | | | | | | Burst T ← C → B | Burst T<-C->B |
| 1288 | | | | | | | | | | | Burst T → C ← B | Burst T->C<-B |
| 1289 | | | | | | | | | | | | |
| 1290 | | | | | | | | | | | | |
| 1291 | | | | | | | | | | | | |
| 1292 | | | | | | | | | | | | |
| 1293 | | | | | | | | | | | | |
| 1294 | | | | | | | | | | | | |
| 1295 | | | | | | | | | | | | |
| 1296 | | | | | | | | | | | | |
| 1297 | | | | | | | | | | | | |
| 1298 | | | | | | | | | | | | |
| 1299 | | | | | | | | | | | | |
| 1300 | | | | | | | | | | | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1301 | 15.73 | 59.94 | 27.000 | 1440x487 | Int | N | N | ANALOG | YPbPr | SD-SDI 487i@59.94 | 1 window | 1 Window |
| 1302 | 15.63 | 50.00 | 27.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | SD-SDI 576i@50 | 4 windows | 4 Window |
| 1303 | | | | | | | | | | | 9 windows | 9 Window |
| 1304 | | | | | | | | | | | 16 windows | 16 Window |
| 1305 | | | | | | | | | | | 25 windows | 25 Window |
| 1306 | | | | | | | | | | | 64 windows | 64 Window |
| 1307 | | | | | | | | | | | 3 windows, vertical direction | 3 Window in V Row |
| 1308 | | | | | | | | | | | 3 windows, horizontal direction | 3 Window in H Row |
| 1309 | | | | | | | | | | | Window user position/center | User pos-Center |
| 1310 | | | | | | | | | | | Window user position/corner | User pos-Corner |
| 1311 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | HD-SDI 1080@60i | Window scroll: Left | Window Scroll: Left |
| 1312 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | HD-SDI 1080@59.94i | Window scroll: Right | Window Scroll: Right |
| 1313 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | HD-SDI 1080@50i | Window scroll: Up | Window Scroll: Up |
| 1314 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | HD-SDI 1080@30sf | Window scroll: Down | Window Scroll: Down |
| 1315 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | HD-SDI 1080@29.97sf | Window scroll: Top left | Window Scroll: L Up |
| 1316 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | HD-SDI 1080@25sf | Window scroll: Bottom left | Window Scroll: L Down |
| 1317 | 27.00 | 48.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | HD-SDI 1080@24sf | Window scroll: Top right | Window Scroll: R Up |
| 1318 | 26.97 | 47.96 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | HD-SDI 1080@23.98sf | Window scroll: Bottom right | Window Scroll: R Down |
| 1319 | 45.00 | 60.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | HD-SDI 720@60p | Window scroll L ⇔ R | Window Scroll: L<->R |
| 1320 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | HD-SDI 720@59.94p | Window scroll: Up ⇔ down | Window Scroll: Up<->D |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1321 | 22.50 | 30.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | HD-SDI 720@30p | Window scroll: Random | Window Scroll: Random |
| 1322 | 22.48 | 29.97 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | HD-SDI 720@29.97p | Window + monoscope | Window & Monoscope |
| 1323 | 18.75 | 25.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | HD-SDI 720@25p | Window: 2-3 pull-down | Window 2-3pull down |
| 1324 | 18.00 | 24.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | HD-SDI 720@24p | 0% window | Window HV Size 0% |
| 1325 | 17.98 | 23.98 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | HD-SDI 720@23.98p | 5% window | Window HV Size 5% |
| 1326 | 37.50 | 50.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | HD-SDI 720@50p | 10% window | Window HV Size 10% |
| 1327 | | | | | | | | | | | 20% window | Window HV Size 20% |
| 1328 | | | | | | | | | | | 30% window | Window HV Size 30% |
| 1329 | | | | | | | | | | | 40% window | Window HV Size 40% |
| 1330 | | | | | | | | | | | 50% window | Window HV Size 50% |
| 1331 | 67.50 | 60.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 3G-A 60p YC422 10b | 60% window | Window HV Size 60% |
| 1332 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 3G-A 59p YC422 10b | 70% window | Window HV Size 70% |
| 1333 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-A 60i RGB 12b | 80% window | Window HV Size 80% |
| 1334 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-A 59i RGB 12b | 90% window | Window HV Size 90% |
| 1335 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-A 60i YC444 12b | 100% window | Window HV Size 100% |
| 1336 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-A 59i YC444 12b | Window: Flicker 1 V | Window Flicker 1V |
| 1337 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-A 60i YC422 12b | Window: Flicker 2 V | Window Flicker 2V |
| 1338 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-A 59i YC422 12b | Window: Flicker 3 V | Window Flicker 3V |
| 1339 | 27.00 | 24.00 | 74.250 | 2048x1080 | Prog | P | P | ANALOG | YPbPr | 3G-A DCI RGB 12b | Window: Flicker 4 V | Window Flicker 4V |
| 1340 | | | | | | | | | | | Window: Level Up | Window Auto Level |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1341 | 67.50 | 60.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 3G-B 60p YC422 10b | Bar: L → R | Moving Bar |
| 1342 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 3G-B 59p YC422 10b | | |
| 1343 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-B 60i RGB 12b | | |
| 1344 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-B 59i RGB 12b | | |
| 1345 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-B 60i YC444 12b | | |
| 1346 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-B 59i YC444 12b | | |
| 1347 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-B 60i YC422 12b | | |
| 1348 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 3G-B 59i YC422 12b | | |
| 1349 | 27.00 | 24.00 | 74.250 | 2048x1080 | Prog | P | P | ANALOG | RGB | 3G-B DCI RGB 12b | | |
| 1350 | | | | | | | | | | | | |
| 1351 | 67.50 | 60.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | Dual 60p YC422 10b | | |
| 1352 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | Dual 59p YC422 10b | | |
| 1353 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | Dual 60i RGB 12b | | |
| 1354 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | Dual 59i RGB 12b | | |
| 1355 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | Dual 60i YC444 12b | | |
| 1356 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | Dual 59i YC444 12b | | |
| 1357 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | Dual 60i YC422 12b | | |
| 1358 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | Dual 59i YC422 12b | | |
| 1359 | 27.00 | 24.00 | 74.250 | 2048x1080 | Prog | P | P | HDTV720 | YPbPr | Dual DCI RGB 12b | | |
| 1360 | | | | | | | | | | | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1361 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 3G-A 50p YC422 10b | | |
| 1362 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 3G-B 50p YC422 10b | | |
| 1363 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | Dual 50p YC422 10b | | |
| 1364 | | | | | | | | | | | | |
| 1365 | | | | | | | | | | | | |
| 1366 | | | | | | | | | | | | |
| 1367 | | | | | | | | | | | | |
| 1368 | | | | | | | | | | | | |
| 1369 | | | | | | | | | | | | |
| 1370 | | | | | | | | | | | | |
| 1371 | | | | | | | | | | | | |
| 1372 | | | | | | | | | | | | |
| 1373 | | | | | | | | | | | | |
| 1374 | | | | | | | | | | | | |
| 1375 | | | | | | | | | | | | |
| 1376 | | | | | | | | | | | | |
| 1377 | | | | | | | | | | | | |
| 1378 | | | | | | | | | | | | |
| 1379 | | | | | | | | | | | | |
| 1380 | | | | | | | | | | | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1381 | 135.00 | 60.00 | 594.000 | 3840x2160 | Prog | P | P | HDTV1080 | RGB | 4K2K 3840x2160p60 s0 | | |
| 1382 | 135.00 | 60.00 | 594.000 | 3840x2160 | Prog | P | P | HDTV1080 | RGB | 4K2K 3840x2160p60 s1 | | |
| 1383 | 135.00 | 60.00 | 594.000 | 3840x2160 | Prog | P | P | HDTV1080 | RGB | 4K2K 3840x2160p60 s2 | | |
| 1384 | 135.00 | 60.00 | 594.000 | 3840x2160 | Prog | P | P | HDTV1080 | RGB | 4K2K 3840x2160p60 s3 | | |
| 1385 | 270.00 | 120.00 | 1188.000 | 3840x2160 | Prog | P | P | HDTV1080 | RGB | 4K2K 3840x2160p120s0 | | |
| 1386 | 270.00 | 120.00 | 1188.000 | 3840x2160 | Prog | P | P | HDTV1080 | RGB | 4K2K 3840x2160p120s1 | | |
| 1387 | 270.00 | 120.00 | 1188.000 | 3840x2160 | Prog | P | P | HDTV1080 | RGB | 4K2K 3840x2160p120s2 | | |
| 1388 | 270.00 | 120.00 | 1188.000 | 3840x2160 | Prog | P | P | HDTV1080 | RGB | 4K2K 3840x2160p120s3 | | |
| 1389 | | | | | | | | | | | | |
| 1390 | | | | | | | | | | | | |
| 1391 | | | | | | | | | | | | |
| 1392 | | | | | | | | | | | | |
| 1393 | | | | | | | | | | | | |
| 1394 | | | | | | | | | | | | |
| 1395 | | | | | | | | | | | | |
| 1396 | | | | | | | | | | | | |
| 1397 | | | | | | | | | | | | |
| 1398 | | | | | | | | | | | | |
| 1399 | | | | | | | | | | | | |
| 1400 | | | | | | | | | | | | |



**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1401 | 31.47 | 59.94 | 27.000 | 720x483 | Prog | N | N | ANALOG | YPbPr | NTSC PROG. | 256-block color | 256-Color Block |
| 1402 | 31.47 | 59.94 | 27.000 | 720x483 | Prog | N | N | ANALOG | YPbPr | NTSC PROG. W | 64-gradation block gray (white → black) | 64Gray Block White-> |
| 1403 | 31.47 | 59.94 | 27.000 | 720x483 | Prog | N | N | ANALOG | YPbPr | NTSC PROG. LB | 64-gradation block gray (black → white) | 64Gray Block Black-> |
| 1404 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 1920x1080@59.94i | 8 color bars & 16 gray scale | 8-Color & 16-Gray |
| 1405 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 1920x1080@60i | Gray scale & crosshatch | Gray & Cross Hatch |
| 1406 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 1920x1080@59.94p | Color bar & crosshatch | Color & Cross Hatch |
| 1407 | 67.50 | 60.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 1920x1080@60p | Color temperature | Color Temperature |
| 1408 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | 1280x720@59.94p | Pairing | Pairing |
| 1409 | 45.00 | 60.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | 1280x720@60p | Crosshatch & circle & gray | Cross&Circle&Gray |
| 1410 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC | YPbPr | NTSC-J 4:3 | Crosshatch & circle & color bar & character | Cross&Circle&Color&H |
| 1411 | | | | | | | | | | | Circle & line | Circle & Line |
| 1412 | | | | | | | | | | | Character edge (H) | H-Character Line |
| 1413 | | | | | | | | | | | Character edge (O) | O-Character Line |
| 1414 | | | | | | | | | | | Crosstalk (width 90%) | Cross Talk W=90% |
| 1415 | | | | | | | | | | | Sine wave scroll | Sign Wave Scroll |
| 1416 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | PAL PROG. | 10 steps & 1/10 MHz | 1/10MHz x 10step |
| 1417 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | PAL PROG. W | Gamma correction ramp wγ = 2.5 | Gamma Ramp wr=2.5 |
| 1418 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | PAL PROG. LB | Gamma correction ramp γ = 2.0 | Gamma Ramp r=2.0 |
| 1419 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 1920x1080@50i | Gamma correction ramp γ = 0.5 | Gamma Ramp r=0.5 |
| 1420 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 1920x1080@50p | SMPTE RP-27.1 | SMPTE RP-27.1 |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1421 | 37.50 | 50.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | 1280x720@50p | ITC pattern 9 windows | ITC 9-Window |
| 1422 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | PAL 4:3 | ITC pattern crosshatch & marker | ITC Cross & Marker |
| 1423 | | | | | | | | | | | ITC pattern H character | ITC H-Character |
| 1424 | | | | | | | | | | | 64 gray + RGBW color bars superimposed | 64-Gray & RGBW-Color |
| 1425 | | | | | | | | | | | Gray scale + circle | Gray & Circle |
| 1426 | 33.72 | 29.97 | 74.176 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 1920x1080@29.97p | Corner & center point marker | Corner&Center Marker |
| 1427 | 33.75 | 30.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 1920x1080@30p | Crosstalk (width 60%) | Cross Talk W=60% |
| 1428 | 26.97 | 23.98 | 74.176 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 1920x1080@23.98p | Song of Youth | SpeakerCheck / Youth |
| 1429 | 27.00 | 24.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 1920x1080@24p | Crosshatch & marker | Cross & Marker 1 |
| 1430 | 28.13 | 25.00 | 74.250 | 1920x1080 | Prog | P | P | HDTV1080 | YPbPr | 1920x1080@25p | 256-color block color “Color” letters | 256-Color <Color> |
| 1431 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 1920x1080@29.97sf | Random 256-color color bar | 256-Color Random |
| 1432 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 1920x1080@30sf | 256-step gray scale & 7 color bars | 256-Gray & 7-Color |
| 1433 | 26.97 | 47.96 | 74.176 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 1920x1080@23.98sf | Center, corner window & edge marker | Corner&Center Window |
| 1434 | 27.00 | 48.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 1920x1080@24sf | 3-step gray scale window | 3gray-Window |
| 1435 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | HDTV1080 | YPbPr | 1920x1080@25sf | 19 × 15 crosshatch & marker | Cross & Marker 2 |
| 1436 | 22.48 | 29.97 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | 1280x720@29.97p | Crosshatch & circle | Circle & Cross Hatch |
| 1437 | 22.50 | 30.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | 1280x720@30p | Checkerboard & window | 1dotChecker & Window |
| 1438 | 17.98 | 23.98 | 74.176 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | 1280x720@23.98p | ANSI pattern (Setup) | ANSI Setup |
| 1439 | 18.00 | 24.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | 1280x720@24p | ANSI pattern (Contrast) | ANSI Contrast |
| 1440 | 18.75 | 25.00 | 74.250 | 1280x720 | Prog | P | P | HDTV720 | YPbPr | 1280x720@25p | ANSI pattern (9Point) | ANSI 9-Point |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1441 | | | | | | | | | | | ANSI pattern (Hor Reso) | ANSI H-Resolution |
| 1442 | | | | | | | | | | | ANSI pattern (Ver Reso) | ANSI V-Resolution |
| 1443 | | | | | | | | | | | Gamma correction ramp γ = 2.2 | Gamma Ramp r=2.2 |
| 1444 | | | | | | | | | | | Gamma correction ramp γ = 0.45 | Gamma Ramp r=0.45 |
| 1445 | | | | | | | | | | | Limited ramp in horizontal direction | Ramp Limited-H |
| 1446 | | | | | | | | | | | Limited ramp in vertical direction | Ramp Limited-V |
| 1447 | | | | | | | | | | | | |
| 1448 | | | | | | | | | | | | |
| 1449 | | | | | | | | | | | | |
| 1450 | | | | | | | | | | | | |
| 1451 | 33.72 | 59.94 | 74.176 | 1920x1035 | Int | P | P | HDTV1080 | YPbPr | 1920x1035@59.94i | | |
| 1452 | 33.75 | 60.00 | 74.250 | 1920x1035 | Int | P | P | HDTV1080 | YPbPr | 1920x1035@60i | | |
| 1453 | 31.25 | 50.00 | 74.250 | 1920x1080 | Int | N | N | HDTV1250 | YPbPr | SMPTE295Mi | | |
| 1454 | 62.50 | 50.00 | 148.500 | 1920x1080 | Prog | N | N | HDTV1250 | YPbPr | SMPTE295Mp | | |
| 1455 | 31.25 | 50.00 | 48.000 | 1280x1152 | Int | P | P | HDTV1152(AUS) | YPbPr | AUS 1152i | | |
| 1456 | 31.25 | 50.00 | 72.000 | 1920x1080 | Int | P | N | HDTV1250(AUS) | YPbPr | AUS 1080i | | |
| 1457 | | | | | | | | | | | | |
| 1458 | | | | | | | | | | | | |
| 1459 | | | | | | | | | | | | |
| 1460 | | | | | | | | | | | | |

＊Prorams No.1461-1480 are not registered.

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1481 | | | | | | | | | | | Motion blur 1 | Motion Blur1 |
| 1482 | | | | | | | | | | | Motion blur 2 | Motion Blur2 |
| 1483 | | | | | | | | | | | Motion blur 3 | Motion Blur3 |
| 1484 | | | | | | | | | | | Motion blur 4 | Motion Blur4 |
| 1485 | | | | | | | | | | | Motion blur 5 | Motion Blur5 |
| 1486 | | | | | | | | | | | Motion blur 6 | Motion Blur6 |
| 1487 | | | | | | | | | | | Motion blur 7 | Motion Blur7 |
| 1488 | | | | | | | | | | | Motion blur 8 | Motion Blur8 |
| 1489 | | | | | | | | | | | Motion blur 9 | Motion Blur9 |
| 1490 | | | | | | | | | | | Motion blur 10 | Motion Blur10 |
| 1491 | | | | | | | | | | | Motion blur 11 | Motion Blur11 |
| 1492 | | | | | | | | | | | Motion blur 12 | Motion Blur12 |
| 1493 | | | | | | | | | | | | |
| 1494 | | | | | | | | | | | | |
| 1495 | | | | | | | | | | | | |
| 1496 | | | | | | | | | | | | |
| 1497 | | | | | | | | | | | | |
| 1498 | | | | | | | | | | | | |
| 1499 | | | | | | | | | | | | |
| 1500 | | | | | | | | | | | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1501 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC | YPbPr | NTSC-J 4:3 | Timing data | Timing Data |
| 1502 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC | YPbPr | NTSC-J 16:9 | | |
| 1503 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC | YPbPr | NTSC-J LB | | |
| 1504 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | PAL 4:3 | | |
| 1505 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | PAL 16:9 | | |
| 1506 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | PAL LB | | |
| 1507 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | SECAM | YPbPr | SECAM 4:3 | | |
| 1508 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | SECAM | YPbPr | SECAM 16:9 | | |
| 1509 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | SECAM | YPbPr | SECAM LB | | |
| 1510 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | NTSC-M | | |
| 1511 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-443 | YPbPr | NTSC-443 | | HDCP On Screen |
| 1512 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | PAL-M | YPbPr | PAL-M | | |
| 1513 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | PAL-60 | YPbPr | PAL-60 | | |
| 1514 | 15.63 | 50.00 | 13.500 | 718x572 | Int | N | N | PAL-N | YPbPr | PAL-N | | |
| 1515 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL-Nc | YPbPr | PAL-Nc | | |
| 1516 | | | | | | | | | | | | |
| 1517 | | | | | | | | | | | | |
| 1518 | | | | | | | | | | | | |
| 1519 | | | | | | | | | | | | |
| 1520 | | | | | | | | | | | | |

**Note: If you select Program # 1507-1509, 1513 and 1514, it is not output from CVBS, Y/C and SCART.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1521 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | Closed Caption CC1 | | |
| 1522 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | Closed Caption CC2 | | |
| 1523 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | Closed Caption Text1 | | |
| 1524 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | Closed Caption Text2 | | |
| 1525 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | V Chip MPAA G | | |
| 1526 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | V Chip MPAA X | | |
| 1527 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | V Chip US TV-Y | | |
| 1528 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | V Chip US TV-MA-VSL | | |
| 1529 | | | | | | | | | | | | |
| 1530 | | | | | | | | | | | | |
| 1531 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | PAL TELETEXT | EDID pattern DVI-1 | EDID DVI1 |
| 1532 | | | | | | | | | | | EDID pattern DVI-1 (HEX) | EDID DVI1(HEX) |
| 1533 | | | | | | | | | | | EDID pattern DVI-2 | EDID DVI2 |
| 1534 | | | | | | | | | | | EDID pattern DVI-2 (HEX) | EDID DVI2(HEX) |
| 1535 | | | | | | | | | | | EDID pattern HDMI1 | EDID HDMI1 |
| 1536 | | | | | | | | | | | EDID pattern HDMI1 (HEX) | EDID HDMI1(HEX) |
| 1537 | | | | | | | | | | | EDID pattern HDMI2 | EDID HDMI2 |
| 1538 | | | | | | | | | | | EDID pattern HDMI2 (HEX) | EDID HDMI2(HEX) |
| 1539 | | | | | | | | | | | EDID pattern PC-DVI | EDID PC-DVI |
| 1540 | | | | | | | | | | | EDID pattern PC-DVI (HEX) | EDID PC-DVI(HEX) |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1541 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC | YPbPr | Mac NTSC-J DVD Type1 | EDID pattern PC-VGA | EDID PC-VGA |
| 1542 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC | YPbPr | Mac NTSC-J DVD Type2 | EDID pattern PC-VGA (HEX) | EDID PC-VGA(HEX) |
| 1543 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC | YPbPr | Mac NTSC-J DVD Type3 | EDID pattern TV-VGA | EDID TV-VGA |
| 1544 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | Mac PAL DVD | EDID pattern TV-VGA (HEX) | EDID TV-VGA(HEX) |
| 1545 | | | | | | | | | | | | |
| 1546 | | | | | | | | | | | | |
| 1547 | | | | | | | | | | | | |
| 1548 | | | | | | | | | | | | |
| 1549 | | | | | | | | | | | | |
| 1550 | | | | | | | | | | | | |
| 1551 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | SCART PAL VBS 4:3 | | |
| 1552 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | SCART PAL Y/C 4:3 | | |
| 1553 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | SCART PAL RGB 4:3 | | |
| 1554 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | SCART PAL VBS 16:9 | | |
| 1555 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | SCART PAL TELETEXT | | |
| 1556 | | | | | | | | | | | | |
| 1557 | | | | | | | | | | | | |
| 1558 | | | | | | | | | | | | |
| 1559 | | | | | | | | | | | | |
| 1560 | | | | | | | | | | | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1561 | | | | | | | | | | | DDC/CIpattern DVI-1 L-0 | DDC/CI DVI1 L-0 |
| 1562 | | | | | | | | | | | DDC/CI pattern DVI-1 L-100 | DDC/CI DVI1 L-100 |
| 1563 | | | | | | | | | | | DDC/CI pattern DVI-1 L-200 | DDC/CI DVI1 L-200 |
| 1564 | | | | | | | | | | | DDC/CI pattern DVI-2 L-0 | DDC/CI DVI2 L-0 |
| 1565 | | | | | | | | | | | DDC/CI pattern DVI-2 L-100 | DDC/CI DVI2 L-100 |
| 1566 | | | | | | | | | | | DDC/CI pattern DVI-2 L-200 | DDC/CI DVI2 L-200 |
| 1567 | | | | | | | | | | | DDC/CI pattern HDMI1 L-0 | DDC/CI HDMI1 L-0 |
| 1568 | | | | | | | | | | | DDC/CI pattern HDMI1 L-100 | DDC/CI HDMI1 L-100 |
| 1569 | | | | | | | | | | | DDC/CI pattern HDMI1 L-200 | DDC/CI HDMI1 L-200 |
| 1570 | | | | | | | | | | | DDC/CI pattern HDMI2 L-0 | DDC/CI HDMI2 L-0 |
| 1571 | | | | | | | | | | | DDC/CI pattern HDMI2 L-100 | DDC/CI HDMI2 L-100 |
| 1572 | | | | | | | | | | | DDC/CI pattern HDMI2 L-200 | DDC/CI HDMI2 L-200 |
| 1573 | | | | | | | | | | | DDC/CI pattern PC-DVI L-0 | DDC/CI pcDVI L-0 |
| 1574 | | | | | | | | | | | DDC/CI pattern PC-DVI L-100 | DDC/CI pcDVI L-100 |
| 1575 | | | | | | | | | | | DDC/CI pattern PC-DVI L-200 | DDC/CI pcDVI L-200 |
| 1576 | | | | | | | | | | | DDC/CI pattern PC-VGA L-0 | DDC/CI pcVGA L-0 |
| 1577 | | | | | | | | | | | DDC/CI pattern PC-VGA L-100 | DDC/CI pcVGA L-100 |
| 1578 | | | | | | | | | | | DDC/CI pattern PC-VGA L-200 | DDC/CI pcVGA L-200 |
| 1579 | | | | | | | | | | | DDC/CI pattern TV-VGA L-0 | DDC/CI tvVGA L-0 |
| 1580 | | | | | | | | | | | DDC/CI pattern TV-VGA L-100 | DDC/CI tvVGA L-100 |
| 1581 | | | | | | | | | | | DDC/CI pattern TV-VGA L-200 | DDC/CI tvVGA L-200 |

※Programs No.1582-1600 are not registered.

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1601 | 37.86 | 85.08 | 31.500 | 640x350 | Prog | P | N | ANALOG | RGB | VESA640x350@85 | | |
| 1602 | 37.86 | 85.08 | 31.500 | 640x400 | Prog | N | P | ANALOG | RGB | VESA640x400@85 | | |
| 1603 | 37.93 | 85.04 | 35.500 | 720x400 | Prog | N | P | ANALOG | RGB | VESA720x400@85 | | |
| 1604 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VESA640x480@60 | | |
| 1605 | 37.86 | 72.81 | 31.500 | 640x480 | Prog | N | N | ANALOG | RGB | VESA640x480@72 | | |
| 1606 | 37.50 | 75.00 | 31.500 | 640x480 | Prog | N | N | ANALOG | RGB | VESA640x480@75 | | |
| 1607 | 43.27 | 85.01 | 36.000 | 640x480 | Prog | N | N | ANALOG | RGB | VESA640x480@85 | | |
| 1608 | 35.16 | 56.25 | 36.000 | 800x600 | Prog | P | P | ANALOG | RGB | VESA800x600@56 | | |
| 1609 | 37.88 | 60.32 | 40.000 | 800x600 | Prog | P | P | ANALOG | RGB | VESA800x600@60 | | |
| 1610 | 48.08 | 72.19 | 50.000 | 800x600 | Prog | P | P | ANALOG | RGB | VESA800x600@72 | | |
| 1611 | 46.88 | 75.00 | 49.500 | 800x600 | Prog | P | P | ANALOG | RGB | VESA800x600@75 | | |
| 1612 | 53.67 | 85.06 | 56.250 | 800x600 | Prog | P | P | ANALOG | RGB | VESA800x600@85 | | |
| 1613 | 76.30 | 119.97 | 73.250 | 800x600 | Prog | P | N | ANALOG | RGB | VESA800x600@120CVT | | |
| 1614 | 31.02 | 60.00 | 33.750 | 848x480 | Prog | P | P | ANALOG | RGB | VESA848x480@60 | | |
| 1615 | 35.52 | 86.96 | 44.900 | 1024x768 | Int | P | P | ANALOG | RGB | VESA1024x768@43 | | |
| 1616 | 48.36 | 60.00 | 65.000 | 1024x768 | Prog | N | N | ANALOG | RGB | VESA1024x768@60 | | |
| 1617 | 56.48 | 70.07 | 75.000 | 1024x768 | Prog | N | N | ANALOG | RGB | VESA1024x768@70 | | |
| 1618 | 60.02 | 75.03 | 78.750 | 1024x768 | Prog | P | P | ANALOG | RGB | VESA1024x768@75 | | |
| 1619 | 68.68 | 85.00 | 94.500 | 1024x768 | Prog | P | P | ANALOG | RGB | VESA1024x768@85 | | |
| 1620 | 97.55 | 119.99 | 115.500 | 1024x768 | Prog | P | N | ANALOG | RGB | VESA1024x768@120CVT | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1621 | 67.50 | 75.00 | 108.000 | 1152x864 | Prog | P | P | ANALOG | RGB | VESA1152x864@75 | CEC pattern HDMI1 Standby | CEC HDMI1 Standby |
| 1622 | 47.40 | 59.99 | 68.250 | 1280x768 | Prog | P | N | ANALOG | RGB | VESA1280x768@60 | CEC pattern HDMI1 Im View On | CEC HDMI1 Im View On |
| 1623 | 47.78 | 59.87 | 79.500 | 1280x768 | Prog | N | P | ANALOG | RGB | VESA1280x768@60 | CEC pattern HDMI1 Set OSD Nm | CEC HDMI1 Set OSD Nm |
| 1624 | 60.29 | 74.89 | 102.250 | 1280x768 | Prog | N | P | ANALOG | RGB | VESA1280x768@75 | CEC pattern HDMI2 Standby | CEC HDMI2 Standby |
| 1625 | 68.63 | 84.84 | 117.500 | 1280x768 | Prog | N | P | ANALOG | RGB | VESA1280x768@85 | CEC pattern HDMI2 Im View On | CEC HDMI2 Im View On |
| 1626 | 97.40 | 119.80 | 140.250 | 1280x768 | Prog | P | N | ANALOG | RGB | VESA1280x768@120CVT | CEC pattern HDMI2 Set OSD Nm | CEC HDMI2 Set OSD Nm |
| 1627 | 49.31 | 59.91 | 71.000 | 1280x800 | Prog | P | N | ANALOG | RGB | VESA1280x800@60CVT | | |
| 1628 | 49.70 | 59.81 | 83.500 | 1280x800 | Prog | N | P | ANALOG | RGB | VESA1280x800@60 | | |
| 1629 | 62.79 | 74.93 | 106.500 | 1280x800 | Prog | N | P | ANALOG | RGB | VESA1280x800@75 | | |
| 1630 | 71.55 | 84.88 | 122.500 | 1280x800 | Prog | N | P | ANALOG | RGB | VESA1280x800@85 | | |
| 1631 | 101.56 | 119.91 | 146.250 | 1280x800 | Prog | P | N | ANALOG | RGB | VESA1280x800@120CVT | | |
| 1632 | 60.00 | 60.00 | 108.000 | 1280x960 | Prog | P | P | ANALOG | RGB | VESA1280x960@60 | | |
| 1633 | 85.94 | 85.00 | 148.500 | 1280x960 | Prog | P | P | ANALOG | RGB | VESA1280x960@85 | | |
| 1634 | 121.88 | 119.84 | 175.500 | 1280x960 | Prog | P | N | ANALOG | RGB | VESA1280x960@120CVT | | |
| 1635 | 63.98 | 60.02 | 108.000 | 1280x1024 | Prog | P | P | ANALOG | RGB | VESA1280x1024@60 | | |
| 1636 | 79.98 | 75.02 | 135.000 | 1280x1024 | Prog | P | P | ANALOG | RGB | VESA1280x1024@75 | | |
| 1637 | 91.15 | 85.02 | 157.500 | 1280x1024 | Prog | P | P | ANALOG | RGB | VESA1280x1024@85 | | |
| 1638 | 130.03 | 119.96 | 187.250 | 1280x1024 | Prog | P | N | ANALOG | RGB | VESA1280x1024@120CVT | | |
| 1639 | 47.71 | 60.02 | 85.500 | 1360x768 | Prog | P | P | ANALOG | RGB | VESA1360x768@60 | | |
| 1640 | 97.53 | 119.97 | 148.250 | 1360x768 | Prog | P | N | ANALOG | RGB | VESA1360x768@120CVT | | |

内蔵プログラムデータ: No. 1621～1640

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1641 | 64.74 | 59.95 | 101.000 | 1400x1050 | Prog | P | N | ANALOG | RGB | VESA1400x1050@60 | | |
| 1642 | 65.32 | 59.98 | 121.750 | 1400x1050 | Prog | N | P | ANALOG | RGB | VESA1400x1050@60 | | |
| 1643 | 82.28 | 74.87 | 156.000 | 1400x1050 | Prog | N | P | ANALOG | RGB | VESA1400x1050@75 | | |
| 1644 | 93.88 | 84.96 | 179.500 | 1400x1050 | Prog | N | P | ANALOG | RGB | VESA1400x1050@85 | | |
| 1645 | 133.33 | 119.90 | 208.000 | 1400x1050 | Prog | P | N | ANALOG | RGB | VESA1400x1050@120CVT | | |
| 1646 | 55.47 | 59.90 | 88.750 | 1440x900 | Prog | P | N | ANALOG | RGB | VESA1440x900@60CVT | | |
| 1647 | 55.93 | 59.89 | 106.500 | 1440x900 | Prog | N | P | ANALOG | RGB | VESA1440x900@60 | | |
| 1648 | 70.64 | 74.98 | 136.750 | 1440x900 | Prog | N | P | ANALOG | RGB | VESA1440x900@75 | | |
| 1649 | 80.43 | 84.84 | 157.000 | 1440x900 | Prog | N | P | ANALOG | RGB | VESA1440x900@85 | | |
| 1650 | 114.22 | 119.85 | 182.750 | 1440x900 | Prog | P | N | ANALOG | RGB | VESA1440x900@120CVT | | |
| 1651 | 75.00 | 60.00 | 162.000 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1600x1200@60 | | |
| 1652 | 81.25 | 65.00 | 175.500 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1600x1200@65 | | |
| 1653 | 87.50 | 70.00 | 189.000 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1600x1200@70 | | |
| 1654 | 93.75 | 75.00 | 202.500 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1600x1200@75 | | |
| 1655 | 106.25 | 85.00 | 229.500 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1600x1200@85 | | |
| 1656 | 152.41 | 119.92 | 268.250 | 1600x1200 | Prog | P | N | ANALOG | RGB | VESA1600x1200@120CVT | | |
| 1657 | 64.67 | 59.88 | 119.000 | 1680x1050 | Prog | P | N | ANALOG | RGB | VESA1680x1050@60CVT | | |
| 1658 | 65.29 | 59.95 | 146.250 | 1680x1050 | Prog | N | P | ANALOG | RGB | VESA1680x1050@60 | | |
| 1659 | 82.31 | 74.89 | 187.000 | 1680x1050 | Prog | N | P | ANALOG | RGB | VESA1680x1050@75 | | |
| 1660 | 93.86 | 84.94 | 214.750 | 1680x1050 | Prog | N | P | ANALOG | RGB | VESA1680x1050@85 | | |

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1661 | 133.42 | 119.99 | 245.500 | 1680x1050 | Prog | P | N | ANALOG | RGB | VESA1680x1050@120CVT | | |
| 1662 | 83.64 | 60.00 | 204.750 | 1792x1344 | Prog | N | P | ANALOG | RGB | VESA1792x1344@60 | | |
| 1663 | 106.27 | 75.00 | 261.000 | 1792x1344 | Prog | N | P | ANALOG | RGB | VESA1792x1344@75 | | |
| 1664 | 170.72 | 119.97 | 333.250 | 1792x1344 | Prog | P | N | ANALOG | RGB | VESA1792x1344@120CVT | | |
| 1665 | 86.33 | 60.00 | 218.250 | 1856x1392 | Prog | N | P | ANALOG | RGB | VESA1856x1392@60 | | |
| 1666 | 112.50 | 75.00 | 288.000 | 1856x1392 | Prog | N | P | ANALOG | RGB | VESA1856x1392@75 | | |
| 1667 | | | | | | | | | | | | |
| 1668 | 74.04 | 59.95 | 154.000 | 1920x1200 | Prog | P | N | ANALOG | RGB | VESA1920x1200@60 | | |
| 1669 | 74.56 | 59.88 | 193.250 | 1920x1200 | Prog | N | P | ANALOG | RGB | VESA1920x1200@60 | | |
| 1670 | 94.04 | 74.93 | 245.250 | 1920x1200 | Prog | N | P | ANALOG | RGB | VESA1920x1200@75 | | |
| 1671 | 107.18 | 84.93 | 281.250 | 1920x1200 | Prog | N | P | ANALOG | RGB | VESA1920x1200@85 | | |
| 1672 | 152.40 | 119.91 | 317.000 | 1920x1200 | Prog | P | N | ANALOG | RGB | VESA1920x1200@120CVT | | |
| 1673 | 90.00 | 60.00 | 234.000 | 1920x1440 | Prog | N | P | ANALOG | RGB | VESA1920x1440@60 | | |
| 1674 | 112.50 | 75.00 | 297.000 | 1920x1440 | Prog | N | P | ANALOG | RGB | VESA1920x1440@75 | | |
| 1675 | | | | | | | | | | | | |
| 1676 | 98.71 | 59.97 | 268.500 | 2560x1600 | Prog | P | N | ANALOG | RGB | VESA2560x1600@60CVT | | |
| 1677 | 47.71 | 59.79 | 85.500 | 1366x768 | Prog | P | P | ANALOG | RGB | VESA1366x768@60 | | |
| 1678 | 45.00 | 60.00 | 74.250 | 1280x720 | Prog | P | P | ANALOG | RGB | VESA1280x720@60 | | |
| 1679 | 48.00 | 60.00 | 72.000 | 1366x768 | Prog | P | P | ANALOG | RGB | VESA1366x768@60 | | |
| 1680 | 60.00 | 60.00 | 108.000 | 1600x900 | Prog | P | P | ANALOG | RGB | VESA1600x900@60 | | |

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1681 | 67.50 | 60.00 | 148.50 | 1920x1080 | Prog | P | P | ANALOG | RGB | VESA1920x1080@60 | | |
| 1682 | 72.00 | 60.00 | 162.00 | 2048x1152 | Prog | P | P | ANALOG | RGB | VESA2048x1152@60 | | |
| 1683 | | | | | | | | | | | | |
| 1684 | | | | | | | | | | | | |
| 1685 | | | | | | | | | | | | |
| 1686 | | | | | | | | | | | | |
| 1687 | | | | | | | | | | | | |
| 1688 | | | | | | | | | | | | |
| 1689 | | | | | | | | | | | | |
| 1690 | | | | | | | | | | | | |
| 1691 | | | | | | | | | | | | |
| 1692 | | | | | | | | | | | | |
| 1693 | | | | | | | | | | | | |
| 1694 | | | | | | | | | | | | |
| 1695 | | | | | | | | | | | | |
| 1696 | | | | | | | | | | | | |
| 1697 | | | | | | | | | | | | |
| 1698 | | | | | | | | | | | | |
| 1699 | | | | | | | | | | | | |
| 1700 | | | | | | | | | | | | |



＊ Programs No.1701-1800 are not registered.

＊ 3D Timings have been moved to Prg.no 1201-1275 since HDMI ver 1.4 support, with which Prg.no 1801-1848 have been all deleted.
Data contained in Prg.no can be read and used with the standard software SP-8870.

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1801 | 134.87 | 59.94 | 296.704 | 1920x2205 | Prog | P | P | ANALOG | YPbPr | 3D 1080p60 FramePack | | |
| 1802 | 112.50 | 50.00 | 297.000 | 1920x2205 | Prog | P | P | ANALOG | YPbPr | 3D 1080p50 FramePack | | |
| 1803 | 53.95 | 23.98 | 148.352 | 1920x2205 | Prog | P | P | ANALOG | YPbPr | 3D 1080p24 FramePack | | |
| 1804 | 67.43 | 29.97 | 148.352 | 1920x2228 | Prog | P | P | ANALOG | YPbPr | 3D 1080i60 FramePack | | |
| 1805 | 56.25 | 25.00 | 148.500 | 1920x2228 | Prog | P | P | ANALOG | YPbPr | 3D 1080i50 FramePack | | |
| 1806 | 89.91 | 59.94 | 148.352 | 1280x1470 | Prog | P | P | ANALOG | YPbPr | 3D 720p60 FramePack | | |
| 1807 | 75.00 | 50.00 | 148.500 | 1280x1470 | Prog | P | P | ANALOG | YPbPr | 3D 720p50 FramePack | | |
| 1808 | 62.94 | 59.94 | 54.000 | 720x1005 | Prog | N | N | ANALOG | YPbPr | 3D 480p60 FramePack | | |
| 1809 | 62.50 | 50.00 | 54.000 | 720x1201 | Prog | N | N | ANALOG | YPbPr | 3D 576p50 FramePack | | |
| 1810 | 31.47 | 29.97 | 54.000 | 1440x1028 | Prog | N | N | ANALOG | YPbPr | 3D 480i60 FramePack | | |
| 1811 | 31.25 | 25.00 | 54.000 | 1440x1226 | Prog | N | N | ANALOG | YPbPr | 3D 576i50 FramePack | | |
| 1812 | 62.94 | 59.94 | 50.350 | 640x1005 | Prog | N | N | ANALOG | RGB | 3D VGAp60 FramePack | | |
| 1813 | 67.43 | 59.94 | 148.352 | 1920x2206 | Int | P | P | ANALOG | YPbPr | 3D 1080i60 FieldAlte | | |
| 1814 | 56.25 | 50.00 | 148.500 | 1920x2206 | Int | P | P | ANALOG | YPbPr | 3D 1080i50 FieldAlte | | |
| 1815 | 31.47 | 59.94 | 54.000 | 1440x1006 | Int | N | N | ANALOG | YPbPr | 3D 480i60 FieldAlte | | |
| 1816 | 31.25 | 50.00 | 54.000 | 1440x1202 | Int | N | N | ANALOG | YPbPr | 3D 576i50 FieldAlte | | |
| 1817 | 134.87 | 59.94 | 296.704 | 1920x2160 | Prog | P | P | ANALOG | YPbPr | 3D 1080p60 LineAlter | | |
| 1818 | 112.50 | 50.00 | 297.000 | 1920x2160 | Prog | P | P | ANALOG | YPbPr | 3D 1080p50 LineAlter | | |
| 1819 | 53.95 | 23.98 | 148.352 | 1920x2160 | Prog | P | P | ANALOG | YPbPr | 3D 1080p24 LineAlter | | |
| 1820 | 89.91 | 59.94 | 148.352 | 1280x1440 | Prog | P | P | ANALOG | YPbPr | 3D 720p60 LineAlter | | |



* 3D Timings have been moved to Prg.no 1201-1275 since HDMI ver 1.4 support, with which Prg.no 1801-1848 have been all deleted.
Data contained in Prg.no can be read and used with the standard software SP-8870.

*** VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1821 | 75.00 | 50.00 | 148.500 | 1280x1440 | Prog | P | P | ANALOG | YPbPr | 3D 720p50 LineAlter | CEC pattern HDMI1 Standby | CEC HDMI1 Standby |
| 1822 | 62.94 | 59.94 | 54.000 | 720x960 | Prog | N | N | ANALOG | YPbPr | 3D 480p60 LineAlter | CEC pattern HDMI1 Im View On | CEC HDMI1 Im View On |
| 1823 | 62.50 | 50.00 | 54.000 | 720x1152 | Prog | N | N | ANALOG | YPbPr | 3D 576p50 LineAlter | CEC pattern HDMI1 Set OSD Nm | CEC HDMI1 Set OSD Nm |
| 1824 | 62.94 | 59.94 | 50.350 | 640x960 | Prog | N | N | ANALOG | RGB | 3D VGAp60 LineAlter | CEC pattern HDMI2 Standby | CEC HDMI2 Standby |
| 1825 | 67.43 | 59.94 | 296.704 | 3840x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p60 Side_full | CEC pattern HDMI2 Im View On | CEC HDMI2 Im View On |
| 1826 | 56.25 | 50.00 | 297.000 | 3840x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p50 Side_full | CEC pattern HDMI2 Set OSD Nm | CEC HDMI2 Set OSD Nm |
| 1827 | 26.97 | 23.98 | 148.352 | 3840x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p24 Side_full | | |
| 1828 | 33.72 | 59.94 | 148.352 | 3840x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i60 Side_full | | |
| 1829 | 28.13 | 50.00 | 148.500 | 3840x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i50 Side_full | | |
| 1830 | 44.96 | 59.94 | 148.352 | 2560x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p60 Side_full | | |
| 1831 | 37.50 | 50.00 | 148.500 | 2560x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p50 Side_full | | |
| 1832 | 31.47 | 59.94 | 54.000 | 1440x480 | Prog | N | N | ANALOG | YPbPr | 3D 480p60 Side_full | | |
| 1833 | 31.25 | 50.00 | 54.000 | 1440x576 | Prog | N | N | ANALOG | YPbPr | 3D 576p50 Side_full | | |
| 1834 | 15.73 | 59.94 | 54.000 | 2880x480 | Int | N | N | ANALOG | YPbPr | 3D 480i60 Side_full | | |
| 1835 | 15.63 | 50.00 | 54.000 | 2880x576 | Int | N | N | ANALOG | YPbPr | 3D 576i50 Side_full | | |
| 1836 | 31.47 | 59.94 | 50.350 | 1280x480 | Prog | N | N | ANALOG | RGB | 3D VGAp60 Side_full | | |
| 1837 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p60 Side_half | | |
| 1838 | 56.25 | 50.00 | 148.500 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p50 Side_half | | |
| 1839 | 26.97 | 23.98 | 74.176 | 1920x1080 | Prog | P | P | ANALOG | YPbPr | 3D 1080p24 Side_half | | |
| 1840 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i60 Side_half | | |

* 3D Timings have been moved to Prg.no 1201-1275 since HDMI ver 1.4 support, with which Prg.no 1801-1848 have been all deleted.
  Data contained in Prg.no can be read and used with the standard software SP-8870.

*** VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1841 | 28.13 | 50.00 | 74.250 | 1920x1080 | Int | P | P | ANALOG | YPbPr | 3D 1080i50 Side_half | | |
| 1842 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p60 Side_half | | |
| 1843 | 37.50 | 50.00 | 74.250 | 1280x720 | Prog | P | P | ANALOG | YPbPr | 3D 720p50 Side_half | | |
| 1844 | 31.47 | 59.94 | 27.000 | 720x480 | Prog | N | N | ANALOG | YPbPr | 3D 480p60 Side_half | | |
| 1845 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | 3D 576p50 Side_half | | |
| 1846 | 15.73 | 59.94 | 27.000 | 1440x480 | Int | N | N | ANALOG | YPbPr | 3D 480i60 Side_half | | |
| 1847 | 15.63 | 50.00 | 27.000 | 1440x576 | Int | N | N | ANALOG | YPbPr | 3D 576i50 Side_half | | |
| 1848 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | 3D VGAp60 Side_half | | |
| 1849 | | | | | | | | | | | | |
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NOTE /
Sample timing Prg.no 1801-1848 includes 3D timings not specified by HDMI specification ver 1.4.
There is possibility to change sample timings in accordance with update of HDMI specification.
As for Vblank3 interval of field-alternative, DE has been currently set to HIGH, which will possibly change in future.

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1850 | 37.86 | 85.08 | 31.500 | 640x400 | Prog | N | P | ANALOG | RGB | VESA400-85 | | |
| 1851 | 37.86 | 72.81 | 31.500 | 640x480 | Prog | N | N | ANALOG | RGB | VESA480-72 | | |
| 1852 | 37.50 | 75.00 | 31.500 | 640x480 | Prog | N | N | ANALOG | RGB | VESA480-75 | | |
| 1853 | 35.16 | 56.25 | 36.000 | 800x600 | Prog | P | P | ANALOG | RGB | VESA600-56 | | |
| 1854 | 37.88 | 60.32 | 40.000 | 800x600 | Prog | P | P | ANALOG | RGB | VESA600-60 | | |
| 1855 | 48.08 | 72.19 | 50.000 | 800x600 | Prog | P | P | ANALOG | RGB | VESA600-72 | | |
| 1856 | 48.36 | 60.00 | 65.000 | 1024x768 | Prog | N | N | ANALOG | RGB | VESA768-60 | | |
| 1857 | 56.48 | 70.07 | 75.000 | 1024x768 | Prog | N | N | ANALOG | RGB | VESA768-70 | | |
| 1858 | 60.02 | 75.03 | 78.750 | 1024x768 | Prog | P | P | ANALOG | RGB | VESA768-75 | | |
| 1859 | 79.98 | 75.02 | 135.000 | 1280x1024 | Prog | P | P | ANALOG | RGB | VESA1024-75 | | |
| 1860 | 91.15 | 85.02 | 157.500 | 1280x1024 | Prog | P | P | ANALOG | RGB | VESA1024-85 | | |
| 1861 | 75.00 | 60.00 | 162.000 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1200-60 | | |
| 1862 | 81.25 | 65.00 | 175.500 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1200-65 | | |
| 1863 | 87.50 | 70.00 | 189.000 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1200-70 | | |
| 1864 | 93.75 | 75.00 | 202.500 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1200-75 | | |
| 1865 | 100.00 | 80.00 | 216.000 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1200-80 | | |
| 1866 | 106.25 | 85.00 | 229.500 | 1600x1200 | Prog | P | P | ANALOG | RGB | VESA1200-85 | | |
| 1867 | 98.21 | 70.05 | 236.500 | 1800x1350 | Prog | N | P | ANALOG | RGB | VESA1350-70 | | |
| 1868 | 18.44 | 49.83 | 16.260 | 720x350 | Prog | N | N | ANALOG | RGB | MDA | | |
| 1869 | 15.75 | 60.10 | 14.360 | 640x200 | Prog | N | N | ANALOG | RGB | CGA | | |
| 1870 | 21.85 | 59.71 | 16.260 | 640x350 | Prog | N | N | ANALOG | RGB | EGA | | |

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1871 | 30.48 | 60.00 | 24.870 | 640x400 | Prog | N | N | ANALOG | RGB | PGA | | |
| 1872 | 31.47 | 50.03 | 28.320 | 720x350 | Prog | N | N | ANALOG | RGB | VGA-TEXT350-50 | | |
| 1873 | 31.47 | 59.94 | 28.320 | 720x350 | Prog | N | N | ANALOG | RGB | VGA-TEXT350-60 | | |
| 1874 | 31.47 | 70.08 | 28.320 | 720x350 | Prog | N | N | ANALOG | RGB | VGA-TEXT350-70 | | |
| 1875 | 31.47 | 50.03 | 28.320 | 720x400 | Prog | N | N | ANALOG | RGB | VGA-TEXT400-50 | | |
| 1876 | 31.47 | 59.94 | 28.320 | 720x400 | Prog | N | N | ANALOG | RGB | VGA-TEXT400-60 | | |
| 1877 | 31.47 | 70.08 | 28.320 | 720x400 | Prog | N | N | ANALOG | RGB | VGA-TEXT400-70 | | |
| 1878 | 31.47 | 50.03 | 25.175 | 640x350 | Prog | N | N | ANALOG | RGB | VGA350-50 | | |
| 1879 | 31.47 | 59.94 | 25.175 | 640x350 | Prog | N | N | ANALOG | RGB | VGA350-60 | | |
| 1880 | 31.47 | 70.09 | 25.175 | 640x350 | Prog | N | N | ANALOG | RGB | VGA350-70 | | |
| 1881 | 31.47 | 50.03 | 25.175 | 640x400 | Prog | N | N | ANALOG | RGB | VGA400-50 | | |
| 1882-A | 31.47 | 59.94 | 25.175 | 640x400 | Prog | N | N | ANALOG | RGB | VGA400-60 | | |
| 1883 | 31.47 | 70.09 | 25.175 | 640x400 | Prog | N | N | ANALOG | RGB | VGA400-70 | | |
| 1884 | 31.47 | 50.03 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-50 | | |
| 1885 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1886 | 35.16 | 56.16 | 36.000 | 800x600 | Prog | N | N | ANALOG | RGB | S-VGA-56 | | |
| 1887 | 48.08 | 72.19 | 50.000 | 800x600 | Prog | N | N | ANALOG | RGB | S-VGA-72 | | |
| 1888 | 46.88 | 75.00 | 49.500 | 800x600 | Prog | N | N | ANALOG | RGB | S-VGA-75 | | |
| 1889 | 48.08 | 59.80 | 65.000 | 1024x768 | Prog | N | N | ANALOG | RGB | XGA-60 | | |
| 1890 | 53.95 | 66.11 | 71.640 | 1024x768 | Prog | N | N | ANALOG | RGB | XGA-66 | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1891 | 56.48 | 70.07 | 75.000 | 1024x768 | Prog | N | N | ANALOG | RGB | XGA-70 | | |
| 1892 | 60.68 | 57.03 | 100.000 | 1280x1024 | Prog | N | N | ANALOG | RGB | SXGA-57 | | |
| 1893 | 63.5 | 59.68 | 106.930 | 1280x1024 | Prog | N | N | ANALOG | RGB | SXGA-60A | | |
| 1894 | 63.75 | 59.75 | 110.160 | 1280x1024 | Prog | N | N | ANALOG | RGB | SXGA-60B | | |
| 1895 | 63.72 | 60.00 | 109.470 | 1280x1024 | Prog | N | N | ANALOG | RGB | SXGA-60C | | |
| 1896 | 78.91 | 74.16 | 132.880 | 1280x1024 | Prog | N | N | ANALOG | RGB | SXGA-70 | | |
| 1897 | 74.63 | 59.94 | 160.000 | 1600x1200 | Prog | N | N | ANALOG | RGB | UXGA1200-60 | | |
| 1898 | 107.42 | 85.05 | 220.000 | 1600x1200 | Prog | N | N | ANALOG | RGB | UXGA1200-85A | | |
| 1899 | 106.48 | 85.05 | 230.000 | 1600x1200 | Prog | N | N | ANALOG | RGB | UXGA1200-85B | | |
| 1900 | 107.42 | 80.05 | 220.000 | 1600x1280 | Prog | N | N | ANALOG | RGB | UXGA1280-80A | | |
| 1901 | 106.48 | 80.06 | 230.000 | 1600x1280 | Prog | N | N | ANALOG | RGB | UXGA1280-80B | | |
| 1902 | 106.4 | 80.00 | 238.340 | 1600x1280 | Prog | N | N | ANALOG | RGB | UXGA1280-80C | | |
| 1903 | 109.82 | 80.40 | 246.000 | 1600x1280 | Prog | N | N | ANALOG | RGB | UXGA1280-82 | | |
| 1904 | 35.52 | 86.96 | 44.900 | 1024x768 | Int | N | N | ANALOG | RGB | IBM 8514A | | |
| 1905 | 63.36 | 60.00 | 89.210 | 1024x1024 | Prog | N | N | ANALOG | RGB | IBM 5080 | | |
| 1906 | 29.58 | 73.14 | 24.020 | 640x754 | Int | N | N | ANALOG | RGB | IBM 5550 | | |
| 1907 | 63.36 | 60.00 | 111.520 | 1280x1024 | Prog | N | N | ANALOG | RGB | IBM 6000 | | |
| 1908 | 15.71 | 59.98 | 6.380 | 323x246 | Prog | N | N | ANALOG | RGB | NAVIGATION | | |
| 1909 | 35.00 | 66.67 | 30.240 | 640x480 | Prog | N | N | ANALOG | RGB | Mac 480-66A | | |
| 1910 | 34.97 | 66.60 | 31.330 | 640x480 | Prog | N | N | ANALOG | RGB | Mac 480-66B | | |

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1911 | 48.83 | 66.89 | 50.000 | 800x600 | Prog | N | N | ANALOG | RGB | Mac 600-66 | | |
| 1912 | 49.72 | 74.55 | 57.280 | 832x624 | Prog | N | N | ANALOG | RGB | Mac 624-57 | | |
| 1913 | 48.78 | 59.56 | 64.000 | 1024x768 | Prog | N | N | ANALOG | RGB | Mac 768-60 | | |
| 1914 | 60.24 | 74.93 | 80.000 | 1024x768 | Prog | N | N | ANALOG | RGB | Mac 768-75 | | |
| 1915 | 68.68 | 75.06 | 100.000 | 1152x870 | Prog | N | N | ANALOG | RGB | Mac 870-75 | | |
| 1916 | 24.82 | 56.42 | 21.050 | 640x400 | Prog | N | N | ANALOG | RGB | NEC PC9801 | | |
| 1917 | 32.86 | 79.84 | 47.840 | 1120x750 | Int | N | N | ANALOG | RGB | NEC PC9801XL | | |
| 1918 | 50.02 | 60.05 | 78.430 | 1120x750 | Prog | N | N | ANALOG | RGB | NEC 768-60A | | |
| 1919 | 56.48 | 70.07 | 75.000 | 1024x768 | Prog | N | N | ANALOG | RGB | NEC 768-70 | | |
| 1920 | 64.6 | 59.93 | 107.500 | 1280x1024 | Prog | N | N | ANALOG | RGB | NEC 1024-60 | | |
| 1921 | 74.88 | 69.85 | 127.000 | 1280x1024 | Prog | N | N | ANALOG | RGB | NEC 1024-70 | | |
| 1922 | 78.86 | 74.11 | 135.000 | 1280x1024 | Prog | N | N | ANALOG | RGB | NEC 1024-75 | | |
| 1923 | 48.36 | 60.08 | 65.000 | 1024x768 | Prog | N | N | ANALOG | RGB | NEC 768-60B | | |
| 1924 | 61.8 | 65.95 | 92.940 | 1152x900 | Prog | N | N | ANALOG | RGB | SUN 900-66 | | |
| 1925 | 71.73 | 76.07 | 105.590 | 1152x900 | Prog | N | N | ANALOG | RGB | SUN 900-76 | | |
| 1926 | 70.84 | 84.03 | 92.940 | 1024x800 | Prog | N | N | ANALOG | RGB | SUN 800-84 | | |
| 1927 | 81.13 | 76.11 | 135.000 | 1280x1024 | Prog | N | N | ANALOG | RGB | SUN 1024-76 | | |
| 1928 | 63.38 | 60.02 | 107.500 | 1280x1024 | Prog | N | N | ANALOG | RGB | SONY NEWS | | |
| 1929 | 78.86 | 74.11 | 135.000 | 1280x1024 | Prog | N | N | ANALOG | RGB | SONY 1024-74 | | |
| 1930 | 78.86 | 74.11 | 135.000 | 1280x1024 | Prog | N | N | ANALOG | RGB | SONY 1024-74 | | |

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1931 | 48.48 | 59.64 | 64.000 | 1024x768 | Prog | N | N | ANALOG | RGB | SGI Indigo768-60 | | |
| 1932 | 77.01 | 72.38 | 130.000 | 1280x1024 | Prog | N | N | ANALOG | RGB | SGI Indigo1024-72 | | |
| 1933 | 63.9 | 60.00 | 107.350 | 1280x1024 | Prog | N | N | ANALOG | RGB | SGI IRIS4D | | |
| 1934 | 63.33 | 59.97 | 108.170 | 1280x1024 | Prog | N | N | ANALOG | RGB | HP 9000t1 | | |
| 1935 | 78.13 | 72.00 | 135.000 | 1280x1024 | Prog | N | N | ANALOG | RGB | HP 9000t2 | | |
| 1936 | 54 | 60.00 | 69.120 | 1024x864 | Prog | N | N | ANALOG | RGB | VAX 768-60 | | |
| 1937 | 70.66 | 66.47 | 119.840 | 1280x1024 | Prog | N | N | ANALOG | RGB | VAX 1024-66 | | |
| 1938 | 60.05 | 75.06 | 78.780 | 1024x768 | Prog | N | N | ANALOG | RGB | Fujitsu FMV 1024-75 | | |
| 1939 | 80.66 | 100.83 | 108.410 | 1024x768 | Prog | N | N | ANALOG | RGB | Fujitsu FMV 1024-100 | | |
| 1940 | 79.7 | 74.83 | 134.370 | 1280x1024 | Prog | N | N | ANALOG | RGB | Fujitsu FMV5166 | | |
| 1941 | 80.38 | 75.12 | 135.040 | 1280x1024 | Prog | N | N | ANALOG | RGB | Fujitsu FMV5133 | | |
| 1942 | 63.74 | 60.02 | 108.100 | 1280x1024 | Prog | N | N | ANALOG | RGB | Fujitsu SIGMA | | |
| 1943 | 78.16 | 71.64 | 135.060 | 1280x1024 | Prog | N | N | ANALOG | RGB | HITACHI SXGA | | |
| 1944 | 26.35 | 59.90 | 22.770 | 640x400 | Prog | N | N | ANALOG | RGB | Panasonic M550 | | |
| 1945 | 46.88 | 75.00 | 49.500 | 800x600 | Prog | P | P | ANALOG | RGB | VESA600-75 | | |
| 1946 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1947 | 31.47 | 59.95 | 28.640 | 746x471 | Prog | N | N | ANALOG | RGB | ASTRO SC-2025 | | |
| 1948 | 64.00 | 59.98 | 115.200 | 1400x1050 | Prog | N | N | ANALOG | RGB | SXGA+ | | |
| 1949 | 94.64 | 59.60 | 265.000 | 2048x1536 | Prog | N | N | ANALOG | RGB | QXGA | | |
| 1950 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC | YPbPr | NTSC | | |

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1951 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | N | N | HDTV1080 | YPbPr | 1080i | | |
| 1952 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1953 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1954 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1955 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1956 | 31.22 | 49.98 | 46.200 | 1170x1168 | Int | N | N | ANALOG | RGB | MEDICAL-1I | | |
| 1957 | 31.22 | 50.03 | 46.200 | 1170x584 | Prog | N | N | ANALOG | RGB | MEDICAL-1N | | |
| 1958 | 30.69 | 60.00 | 36.830 | 947x946 | Int | N | N | ANALOG | RGB | MEDICAL-2I | | |
| 1959 | 30.69 | 60.06 | 36.830 | 947x473 | Prog | N | N | ANALOG | RGB | MEDICAL-2N | | |
| 1960 | 37.93 | 85.04 | 35.500 | 720x400 | Prog | N | P | ANALOG | RGB | VESA400-88 | | |
| 1961 | 112.5 | 90.00 | 243.000 | 1600x1200 | Prog | N | N | ANALOG | RGB | 1200-90 | | |
| 1962 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1963 | 63.98 | 60.02 | 108.000 | 1280x1024 | Prog | P | P | ANALOG | RGB | VESA1024-60 | | |
| 1964 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | SECAM | YPbPr | SECAM | | |
| 1965 | 31.47 | 59.94 | 34.240 | 864x480 | Prog | N | N | ANALOG | RGB | W-VGA | | |
| 1966 | 37.88 | 60.32 | 53.940 | 1072x600 | Prog | N | N | ANALOG | RGB | W-SVGA | | |
| 1967 | 48.36 | 60.00 | 87.440 | 1376x768 | Prog | N | N | ANALOG | RGB | W-XGA | | |
| 1968 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC | YPbPr | NTSC | | |
| 1969 | 15.63 | 50.00 | 13.500 | 702x574 | Int | N | N | PAL | YPbPr | PAL | | |
| 1970 | 67.5 | 60.00 | 148.500 | 1920x1080 | Prog | N | N | HDTV1080 | YPbPr | 1080P | | |

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1971 | 67.43 | 59.94 | 148.352 | 1920x1080 | Prog | N | N | HDTV1080 | YPbPr | 1080P | | |
| 1972 | 33.75 | 60.00 | 74.250 | 1920x1080 | Int | N | N | HDTV1080 | YPbPr | 1080i | | |
| 1973 | 33.72 | 59.94 | 74.176 | 1920x1080 | Int | N | N | HDTV1080 | YPbPr | 1080i | | |
| 1974 | 33.75 | 60.00 | 74.250 | 1920x1035 | Int | N | N | HDTV1080 | YPbPr | 1035i | | |
| 1975 | 33.72 | 59.94 | 74.176 | 1920x1035 | Int | N | N | HDTV1080 | YPbPr | 1035i | | |
| 1976 | 45.00 | 60.00 | 74.250 | 1280x720 | Prog | N | N | HDTV720 | YPbPr | 720P | | |
| 1977 | 44.96 | 59.94 | 74.176 | 1280x720 | Prog | N | N | HDTV720 | YPbPr | 720P | | |
| 1978 | 31.47 | 59.94 | 27.000 | 720x483 | Prog | N | N | ANALOG | YPbPr | 483P | | |
| 1979 | 31.25 | 50.00 | 27.000 | 720x576 | Prog | N | N | ANALOG | YPbPr | PAL*2 | | |
| 1980 | 83.64 | 60.00 | 204.750 | 1792x1344 | Prog | N | P | ANALOG | RGB | VESA1344-60 | | |
| 1981 | 83.64 | 60.00 | 204.750 | 1792x1344 | Prog | N | P | ANALOG | RGB | VESA1344-60 | | |
| 1982 | 86.33 | 60.00 | 218.250 | 1856x1392 | Prog | N | P | ANALOG | RGB | VESA1392-60 | | |
| 1983 | 86.33 | 60.00 | 218.250 | 1856x1392 | Prog | N | P | ANALOG | RGB | VESA1392-60 | | |
| 1984 | 90.00 | 60.00 | 234.000 | 1920x1440 | Prog | N | P | ANALOG | RGB | VESA1440-60 | | |
| 1985 | 90.00 | 60.00 | 234.000 | 1920x1440 | Prog | N | P | ANALOG | RGB | VESA1440-60 | | |
| 1986 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1987 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1988 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1989 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1990 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |

**＊ VG-882-A does not support programs in gray. These programs will show error message.**

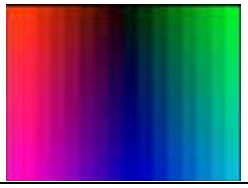
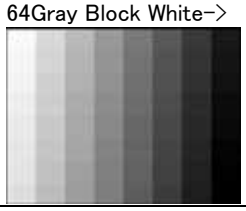
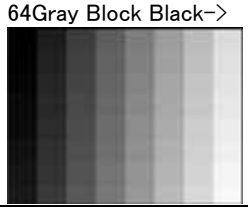
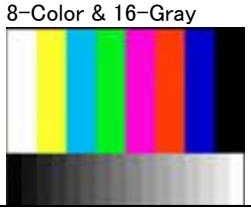
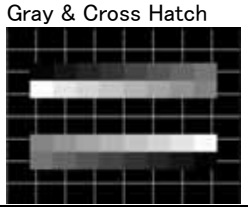
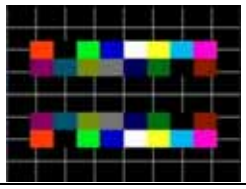
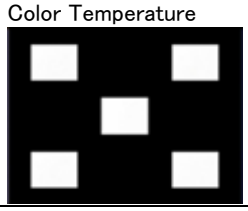
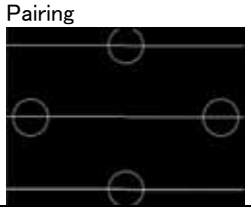
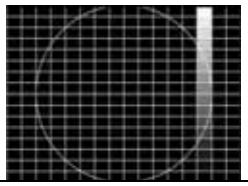
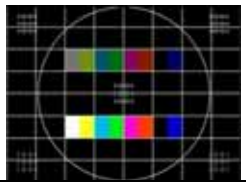
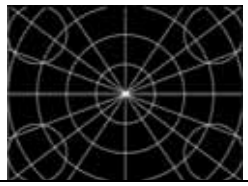
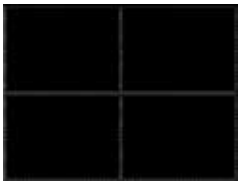
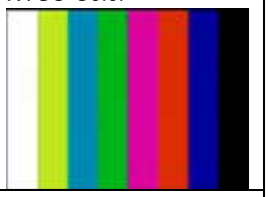
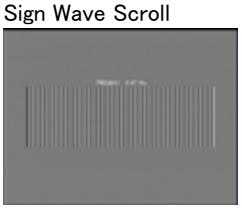
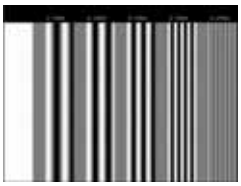
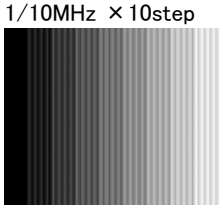
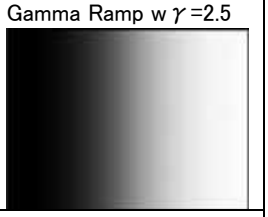
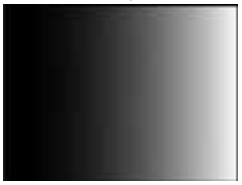
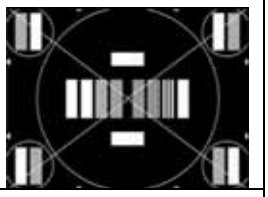
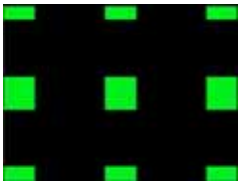
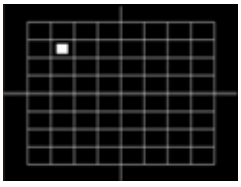
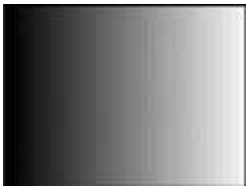
| Program No. | Horizontal frequency [KHz] | Vertical frequency [Hz] | Dot clock frequency [MHz] | No. of display dots (HxV) | Int / Prog | Sync polarity | | SyncType | Color difference | Timing data name | Pattern data | Pattern data name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | H | V | | | | | |
| 1991 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1992 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1993 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1994 | 15.73 | 59.94 | 13.500 | 712x484 | Int | N | N | NTSC-M | YPbPr | NTSC-M | | |
| 1995 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1996 | 31.47 | 59.94 | 25.175 | 640x480 | Prog | N | N | ANALOG | RGB | VGA480-60 | | |
| 1997 | 48.08 | 72.19 | 50.000 | 800x600 | Prog | P | P | ANALOG | RGB | VESA600-72 | | |
| 1998 | 56.48 | 70.07 | 75.000 | 1024x768 | Prog | N | N | ANALOG | RGB | VESA768-70 | | |
| 1999 | 79.98 | 75.02 | 135.000 | 1280x1024 | Prog | P | P | ANALOG | RGB | VESA1024-75 | | |

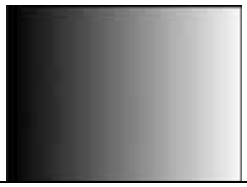
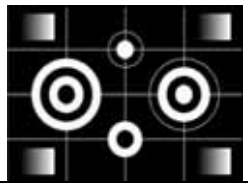
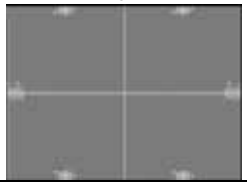
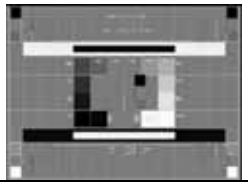
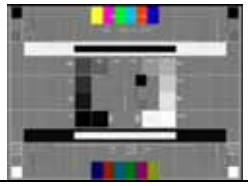
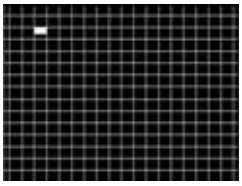
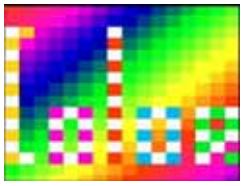
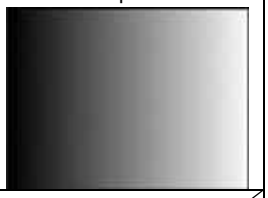
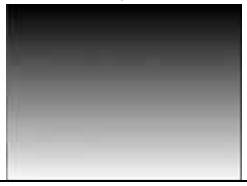
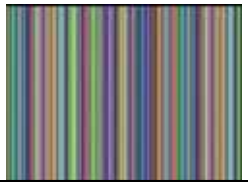
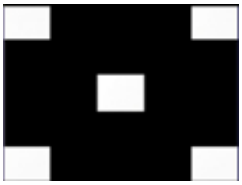
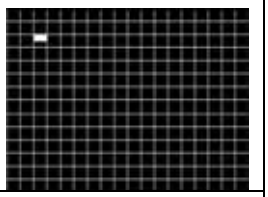
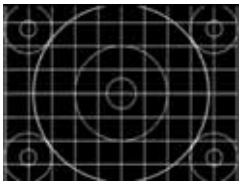
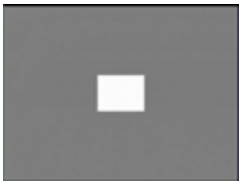
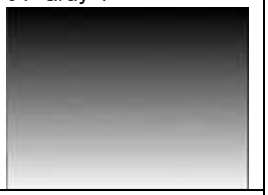
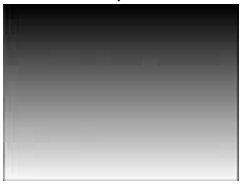
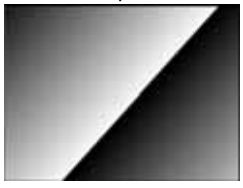
内蔵プログラムデータ：No. 1991～1999

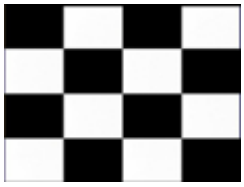
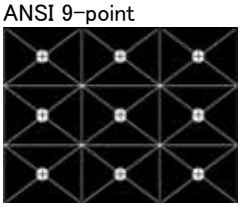
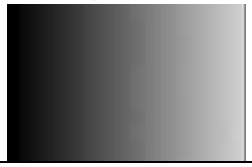
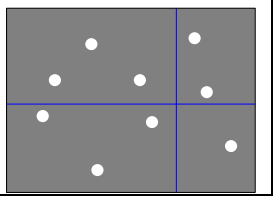
**＊ Internal program data No. 1507-1509, 1513, 1514, 1961 will not output signals from CVBS, Y/C, and SCART connectors.**

## 10.2 Optional pattern data

The internal optional pattern data (No.1 to No.70) of the VG-882-A is as shown below.

| No. | Pattern Name | No. | Pattern Name | No. | Pattern Name | No. | Pattern Name |
|---|---|---|---|---|---|---|---|
| 1 | 256-Color Block  | 2 | 64Gray Block White->  | 3 | 64Gray Block Black->  | 4 | 8-Color & 16-Gray  |
| 5 | Gray & Cross Hatch  | 6 | Color & Cross Hatch  | 7 | Color Temperature  | 8 | Pairing  |
| 9 | Cross & Circle & Gray  | 10 | Cross & Circle & Color & H  | 11 | Circle & Line  | 12 | H-Character Line |
| 13 | O-Character Line  | 14 | Cross Talk W = 90% | 15 | | 16 | NTSC Color  |
| 17 | Sign Wave Scroll  | 18 | Multi Burst 100%  | 19 | 1/10MHz ×10step  | 20 | Gamma Ramp w $\gamma$=2.5  |
| 21 | Gamma Ramp $\gamma$=2.0  | 22 | Gamma Ramp $\gamma$=0.5 | 23 | SMPTE Color | 24 | SMPTE RP-27.1  |
| 25 | ITC 9-Window  | 26 | ITC Cross & Marker  | 27 | ITC H-Character | 28 | 32-Gray H  |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 29 | 64-Gray H  | 30 | 64-Gray H & RGBW-Color | 31 | Gray & Circle  | 32 | AFD |
| 33 | Corner & Center Marker | 34 | Cross Talk W = 60% | 35 | Gamma Ramp γ=2.2 | 36 | Gamma Ramp γ=0.45 |
| 37 | Position Adjuster  | 38 | SMPTE RP-133  | 39 | SMPTE RP-133 Color  | 40 | SpeakerCheck / Youth |
| 41 | | 42 | Cross & Marker 1  | 43 | 256-Color <Color>  | 44 | Linear Ramp H  |
| 45 | Linear Ramp V  | 46 | 256-Color Random  | 47 | | 48 | |
| 49 | Corner & Center Window  | 50 | 32-Gray H2 | 51 | 3gray-Window | 52 | Cross & Marker 2  |
| 53 | Circle & Cross Hatch  | 54 | 1dotChecker & Window  | 55 | 32-Gray V | 56 | 64-Gray V  |
| 57 | Linear Ramp H | 58 | Linear Ramp V  | 59 | Linear Ramp HV  | 60 | ANSI Setup |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 61 | ANSI Contrast  | 62 | ANSI 9-point  | 63 | ANSI H-Resolution | 64 | ANSI V-Resolution |
| 65 | 128-Gray H  | 66 | | 67 | | 68 | |
| 69 | | 70 | | 71 | | 72 | |
| 73 | | 74 | | 75 | | 76 | 9 Marker  |
| 77 | | 78 | | 101 | 3D Pattern ※1 | | |

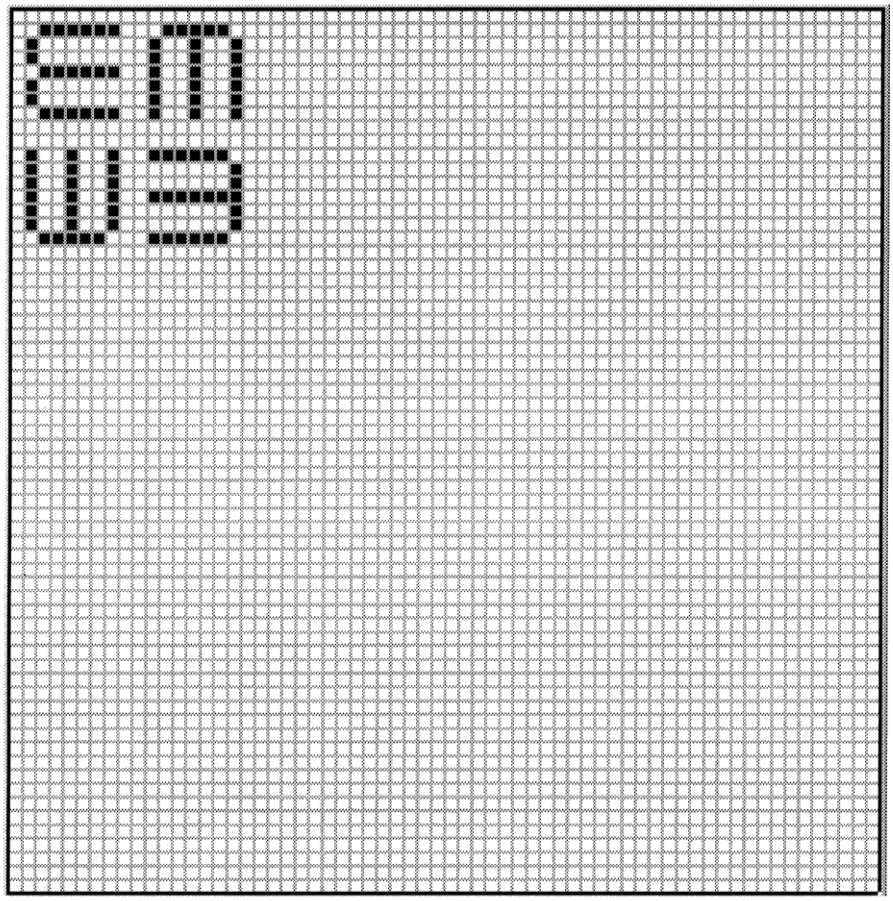
*1: Licence registration is required.  Ask more us for purchase of licence.
*2: This is a pattern supporting minus levels specially for analog CVBS output.  It cannot display the pattern with proper level in other outputs.
*3: This is a pattern supporting minus levels specially for analog Component output.  It cannot display the pattern with proper level in other outputs.

## 10.3 User character pattern data

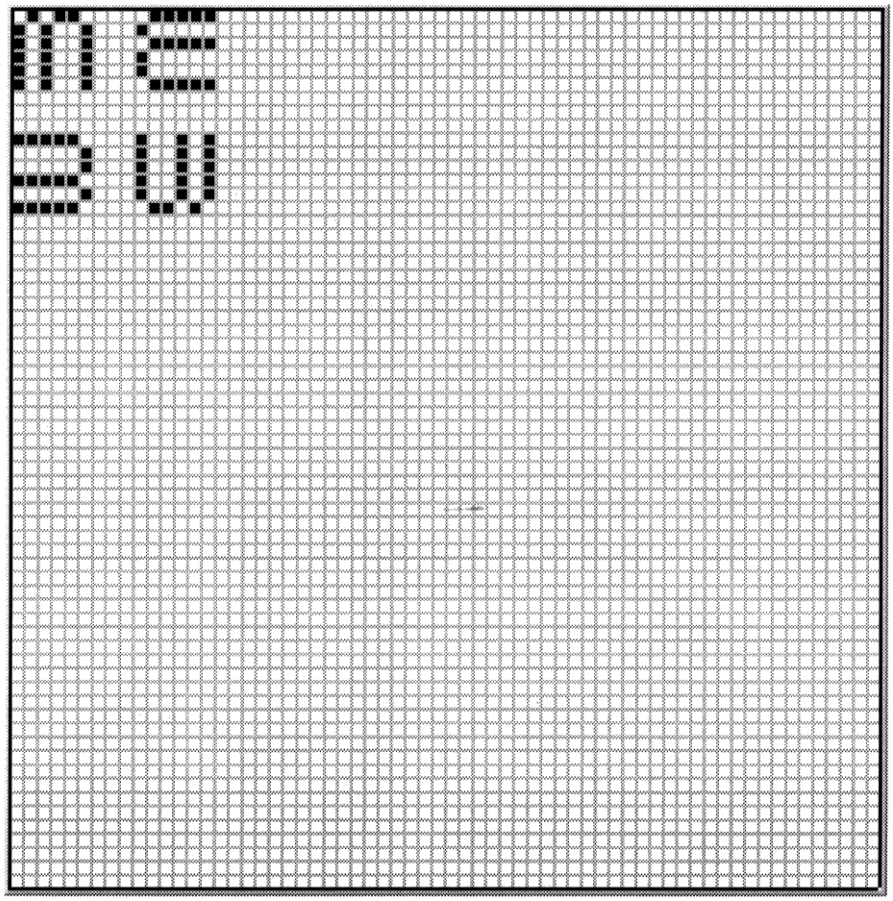
| コード(H) | 説明 | セルサイズ | 参照頁 |
|---|---|---|---|
| F0 | Letters “me” #1 | 18 x 18 | p.292 |
| F1 | Letters “me” #2 (VESA specifications) | 18 x 18 | p.292 |
| F2 | Chinese character “AI” | 64 x 64 | p.293 |
| F3 | Chinese character “BI” | 64 x 64 | p.293 |
| F4 | Chinese character “TAKA” | 32 x 32 | p.294 |
| F5 | Chinese character “KIRI” | 32 x 32 | p.294 |
| F6 | Chinese character “KEN” | 32 x 32 | p.295 |
| F7 | Burst | 64 x 64 | p.295 |
| F8 | | | |
| F9 | | | |
| FA | | | |
| FB | | | |
| FC | | | |
| FD | | | |
| FE | | | |
| FF | | | |

## ■ F0H [letters “me” #1]/F1H [letters “me” #2 (VESA specifications)]

**F0H**

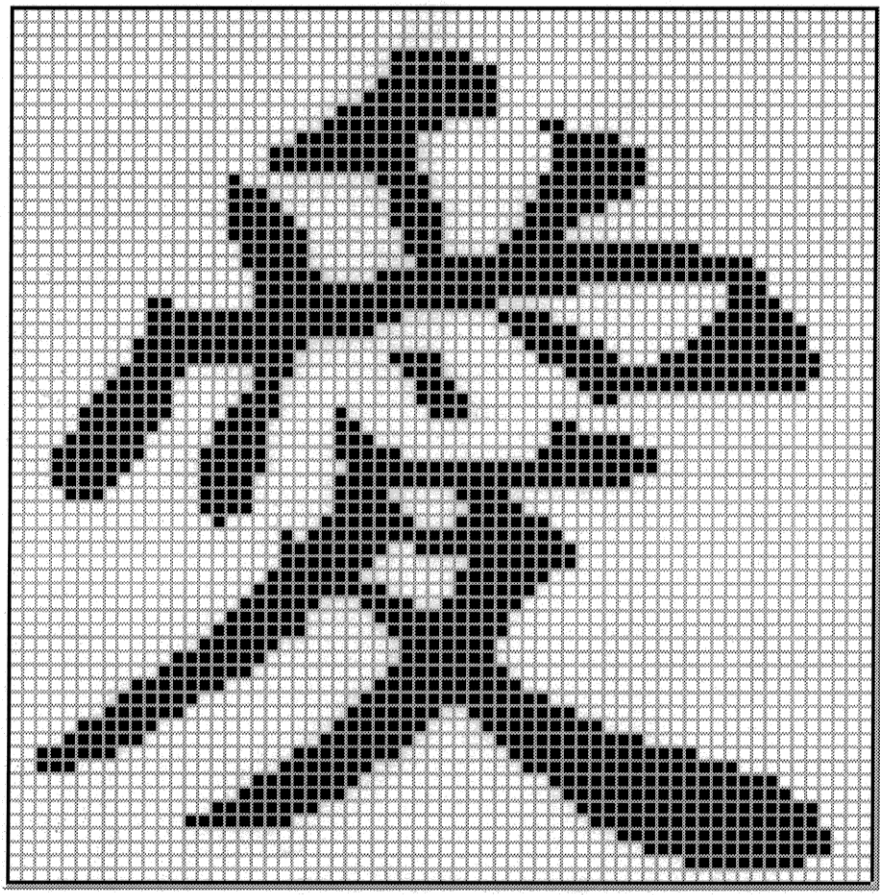


**F1H**

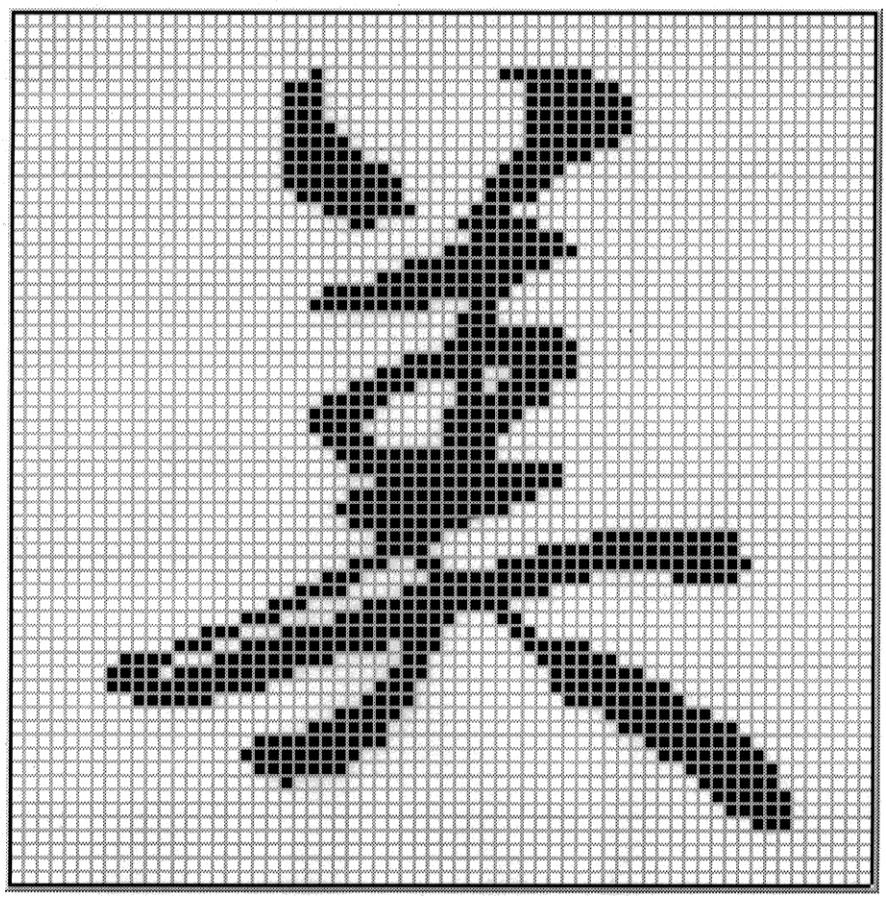


## ■ F2H [Chinese character “AI”]/F3H [Chinese character “BI”]

**F2H**

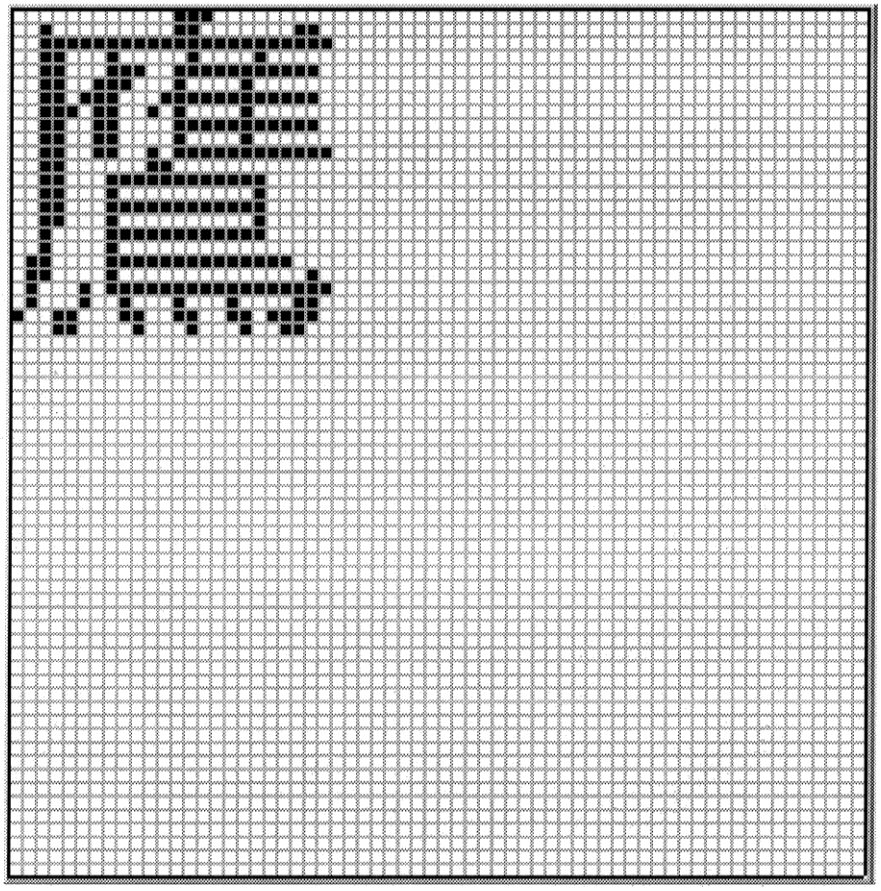


**F3H**

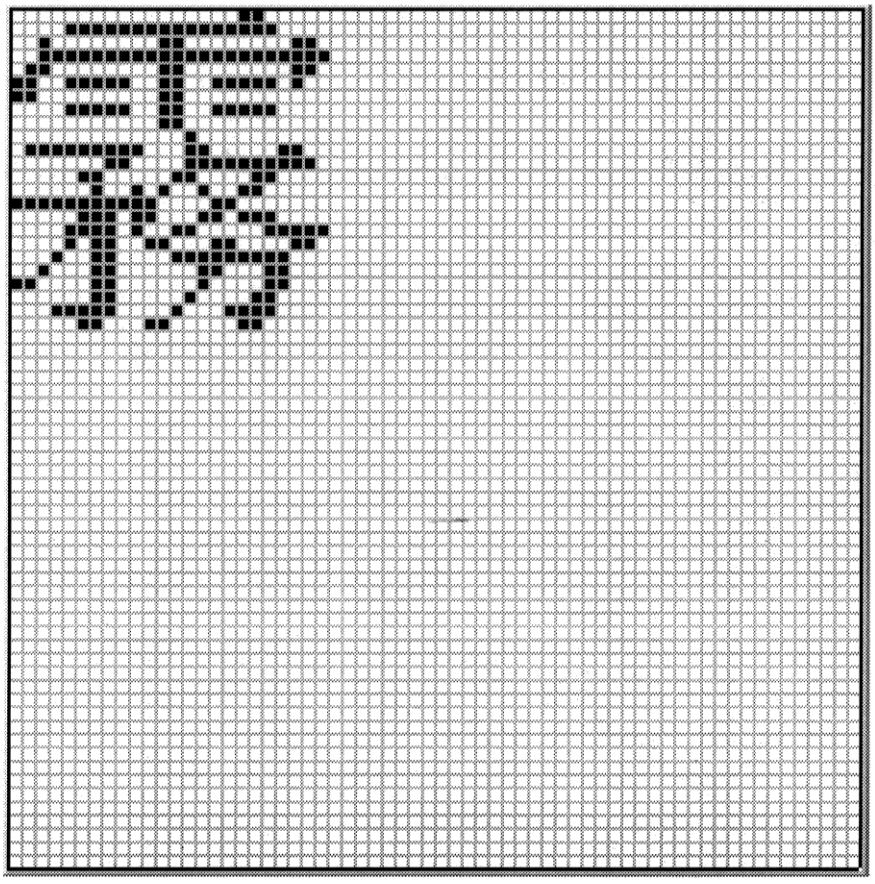


## ■F4H [Chinese character “TAKA”]/F5H [Chinese character “KIRI”]

F4H

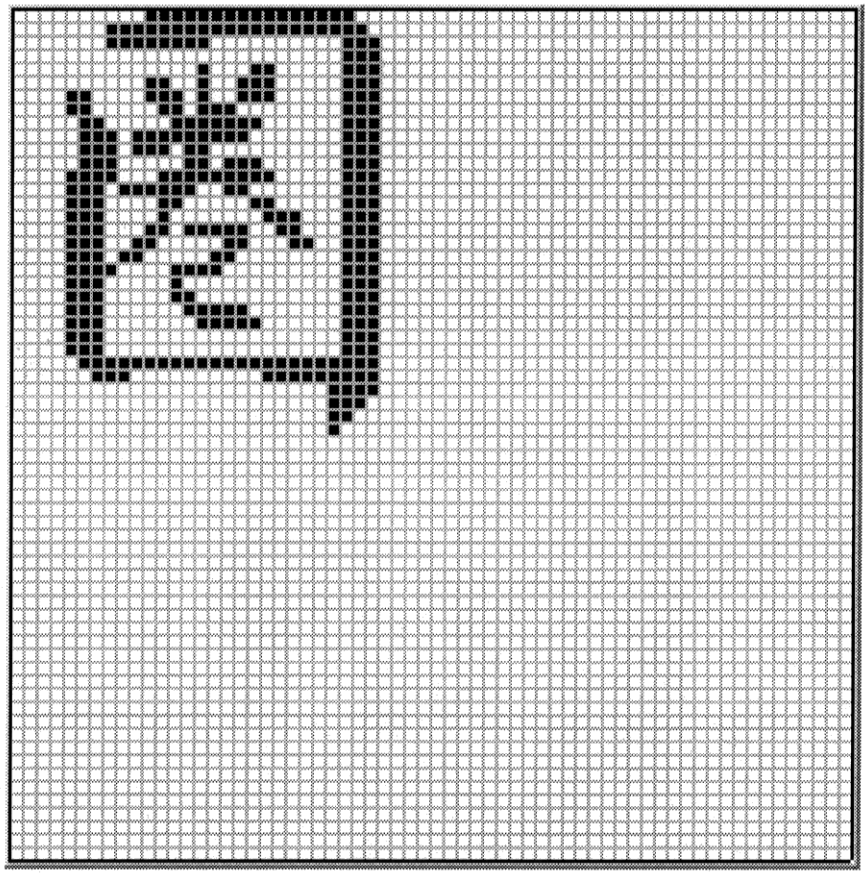


F5H

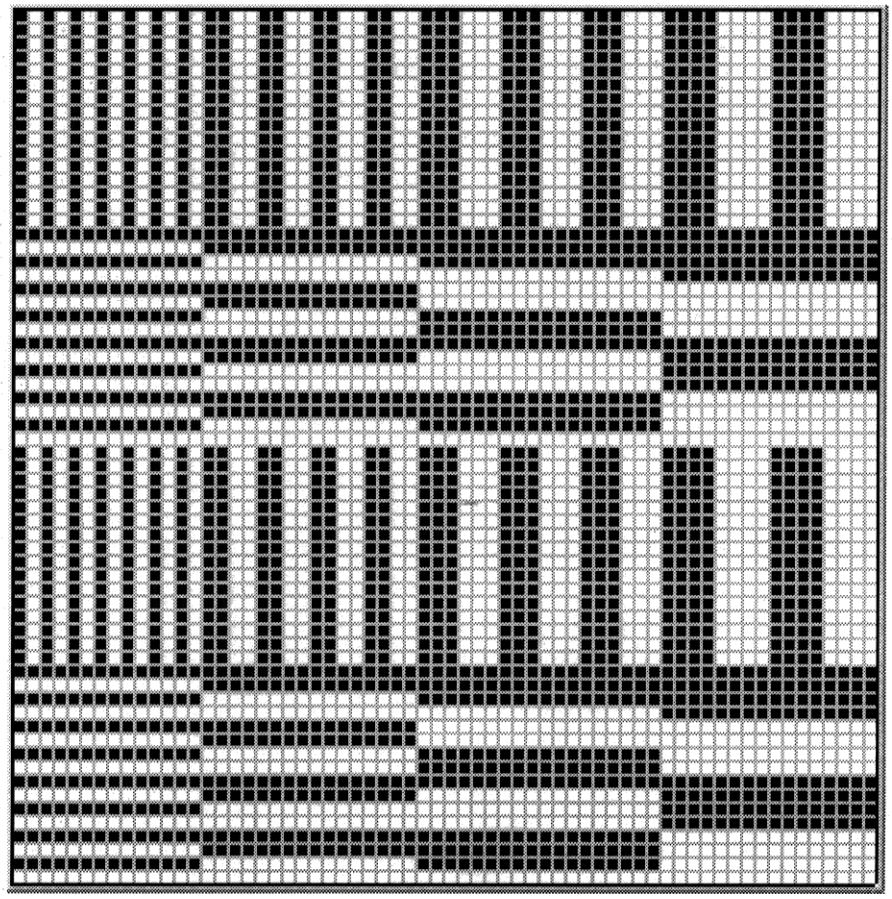


## ■ F6H [Chinese character “KEN”]/F7H [Burst]

**F6H**

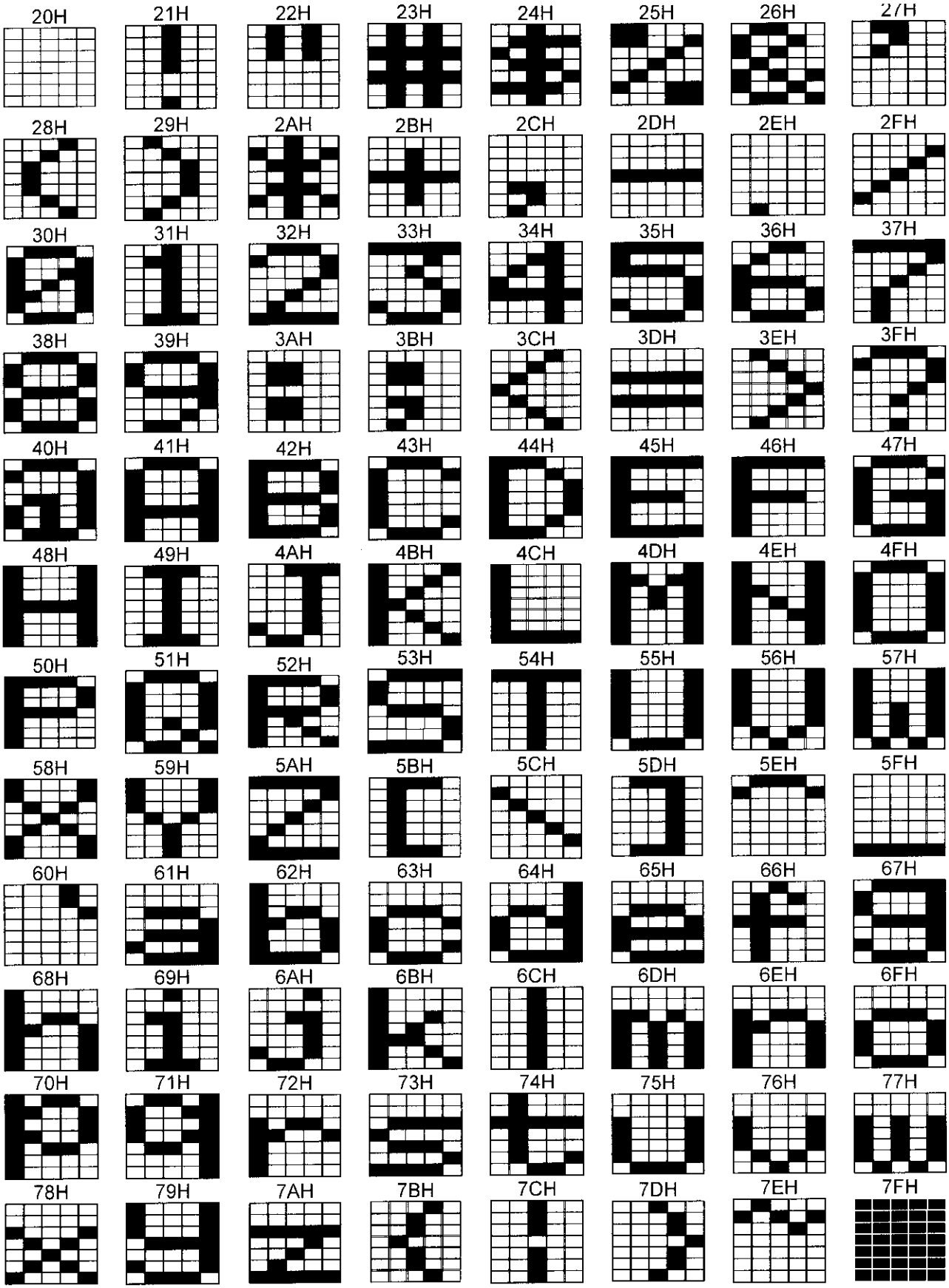


**F7H**

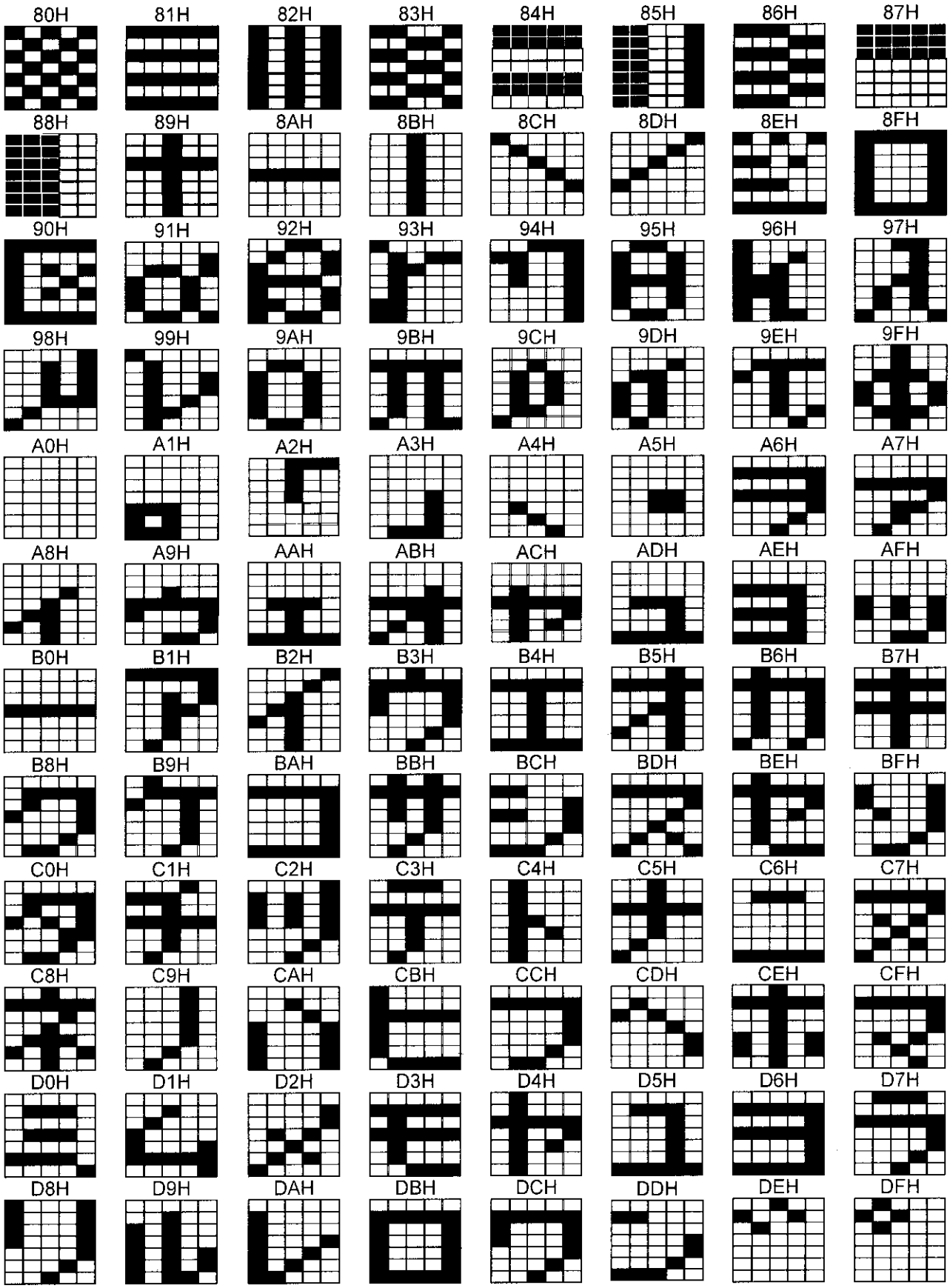


## 10.4 Character pattern data

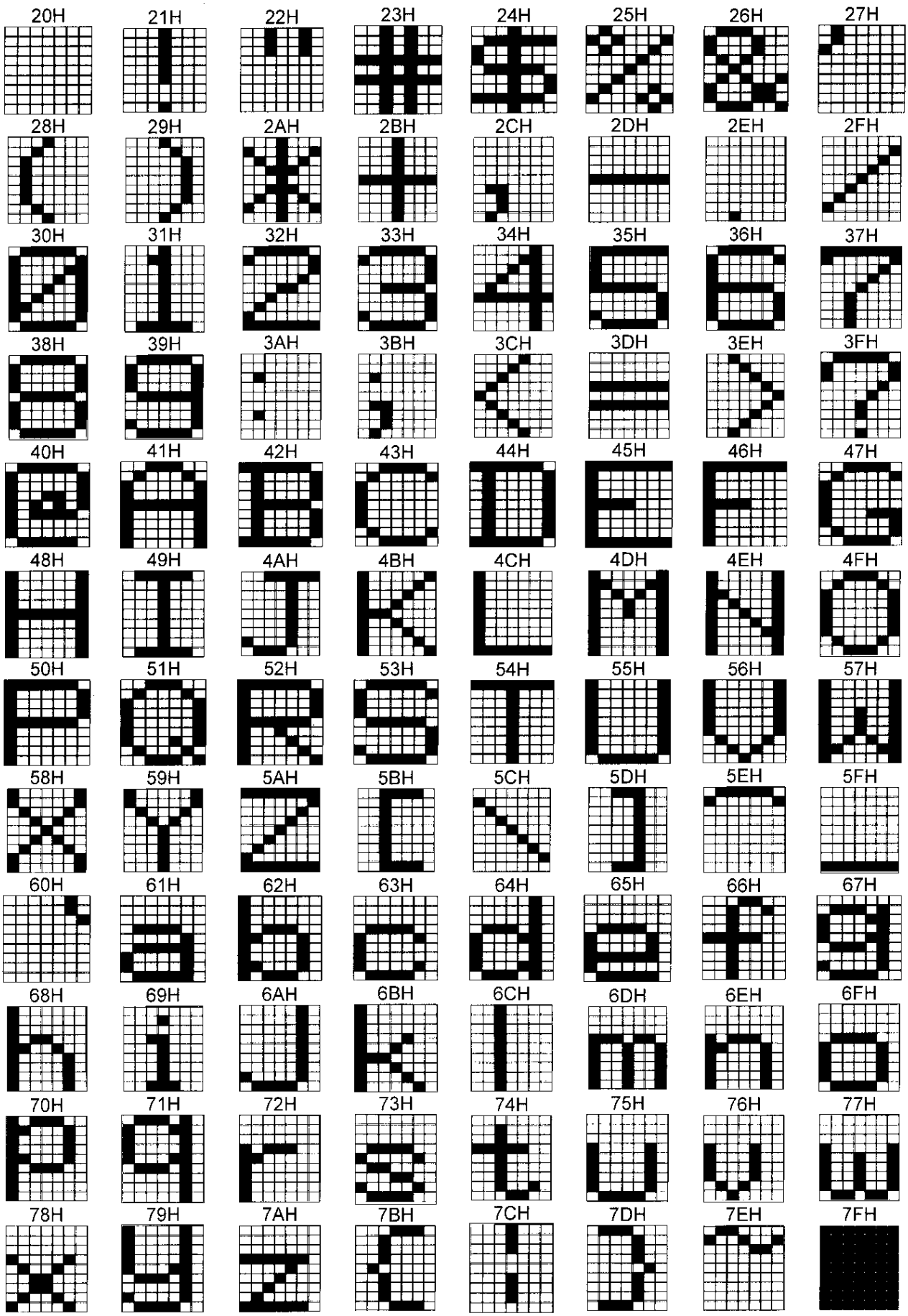
### ■ 5 × 7 character pattern table (1 of 2)



■5 × 7 character pattern table (2 of 2)



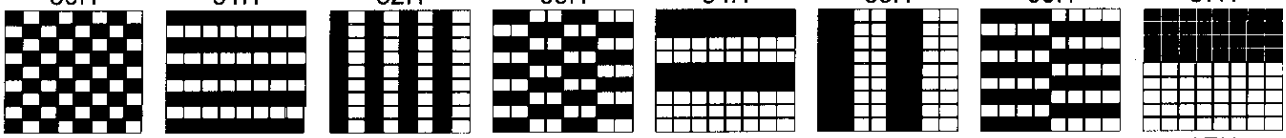
## ■ 7 × 9 character pattern table (1 of 2)



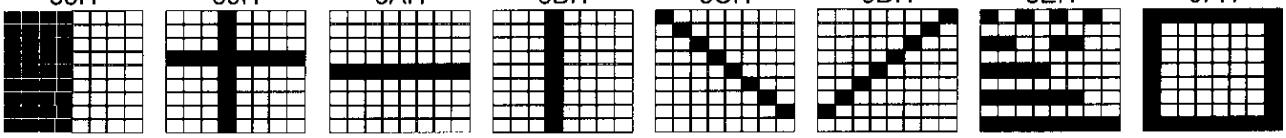
## ■ 7 × 9 character pattern table (2 of 2)

※8 × 9 dots are used for 80H to 8FH.

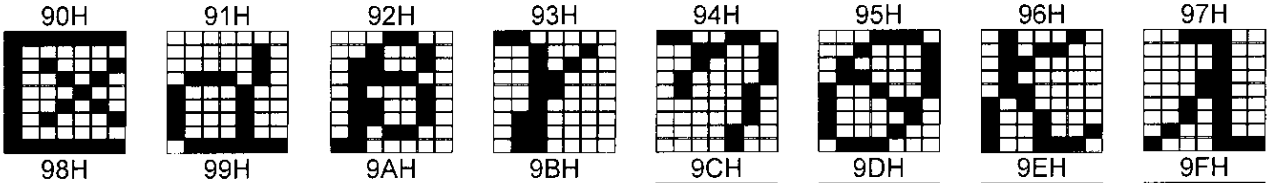
80H 81H 82H 83H 84H 85H 86H 87H



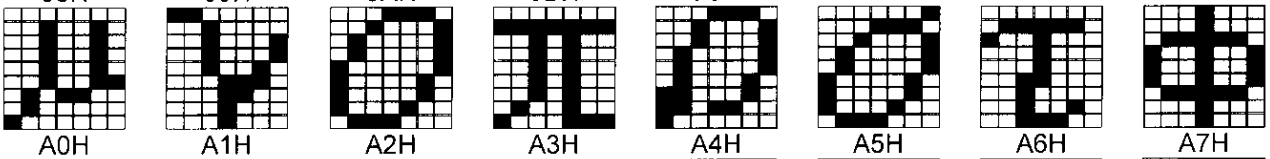
88H 89H 8AH 8BH 8CH 8DH 8EH 8FH



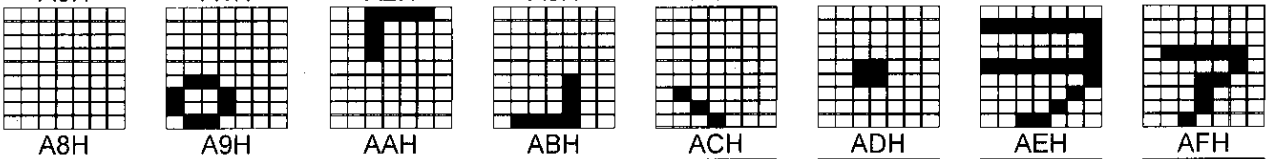
90H 91H 92H 93H 94H 95H 96H 97H



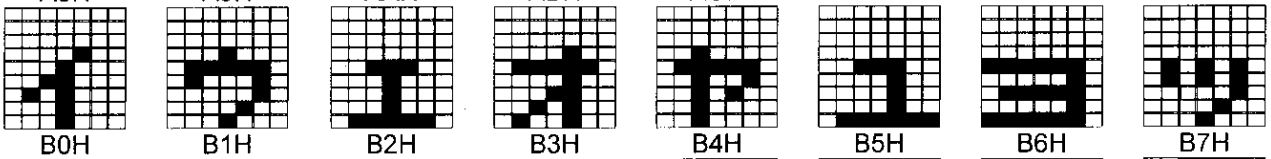
98H 99H 9AH 9BH 9CH 9DH 9EH 9FH



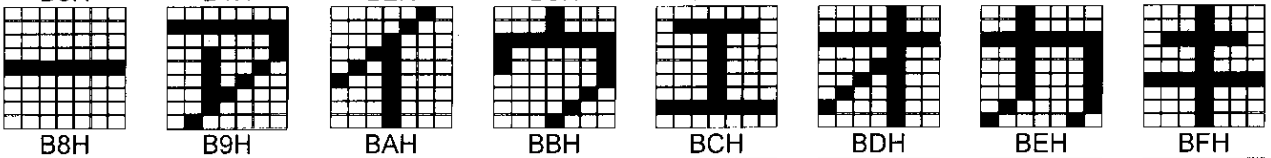
A0H A1H A2H A3H A4H A5H A6H A7H



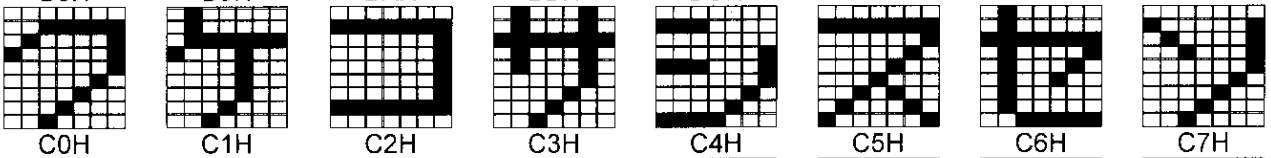
A8H A9H AAH ABH ACH ADH AEH AFH



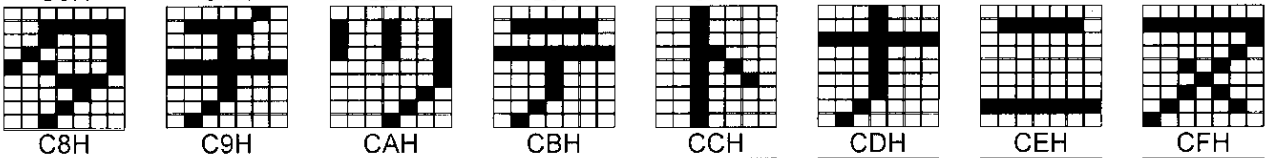
B0H B1H B2H B3H B4H B5H B6H B7H



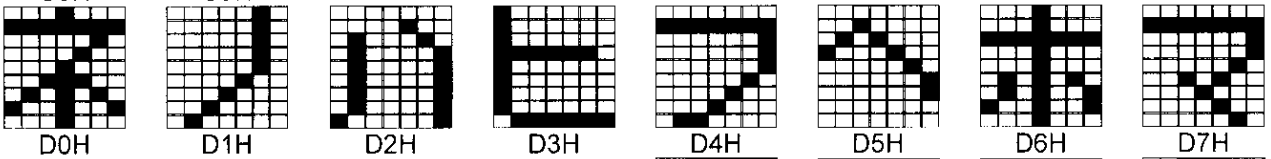
B8H B9H BAH BBH BCH BDH BEH BFH



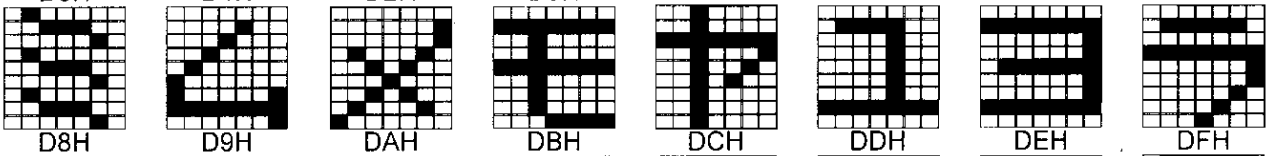
C0H C1H C2H C3H C4H C5H C6H C7H



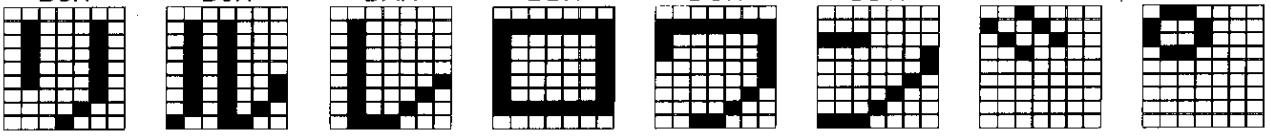
C8H C9H CAH CBH CCH CDH CEH CFH



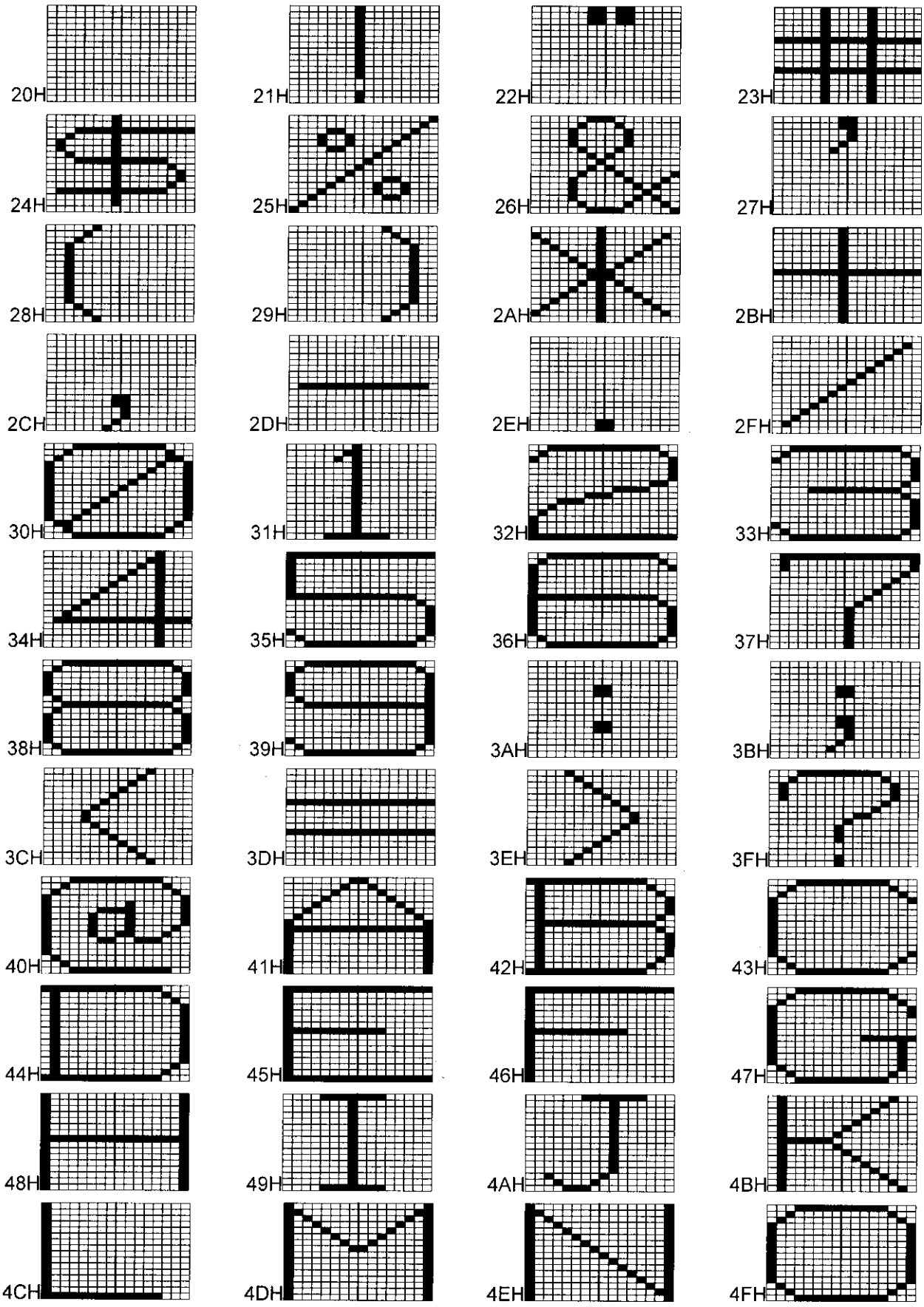
D0H D1H D2H D3H D4H D5H D6H D7H



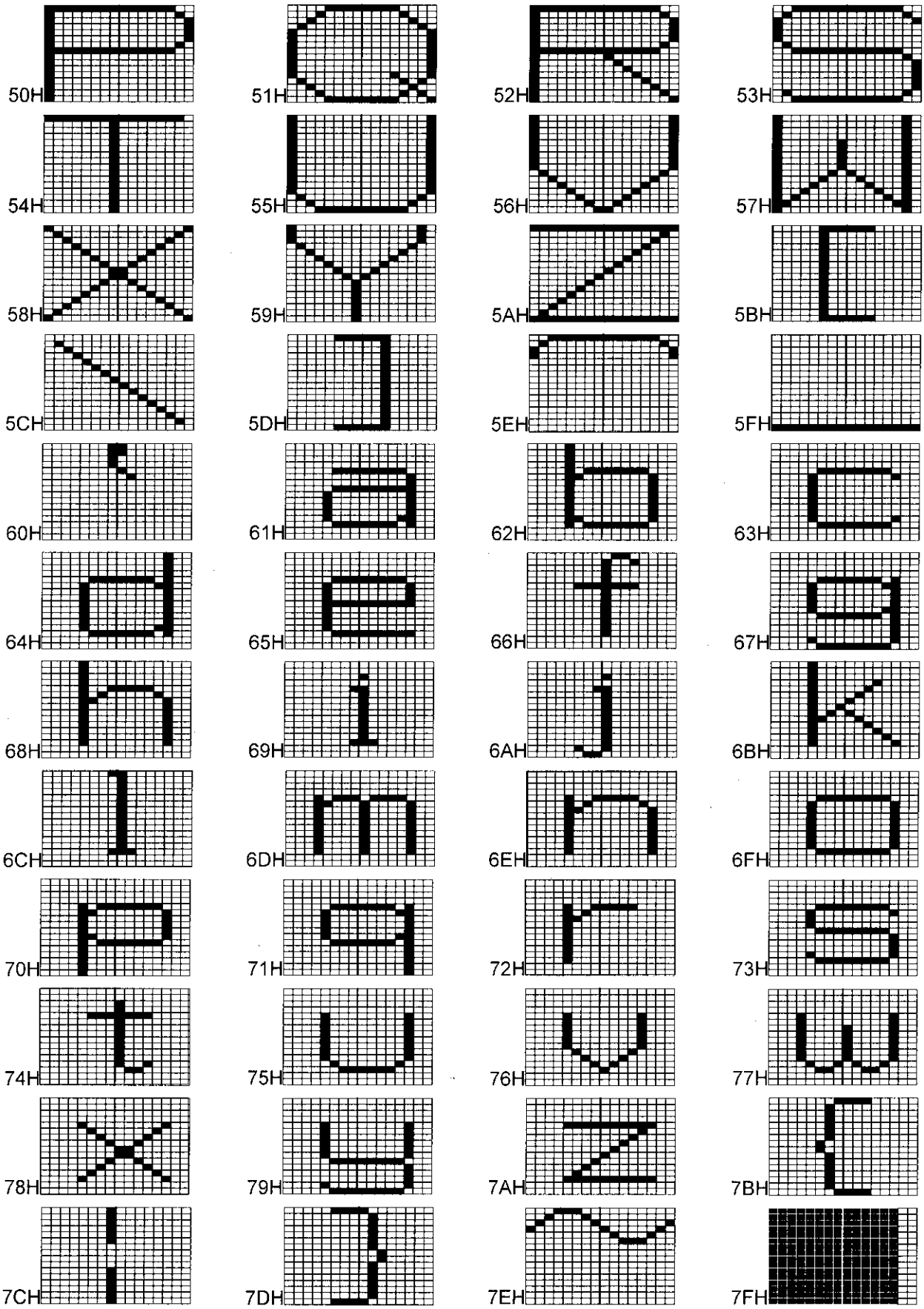
D8H D9H DAH DBH DCH DDH DEH DFH



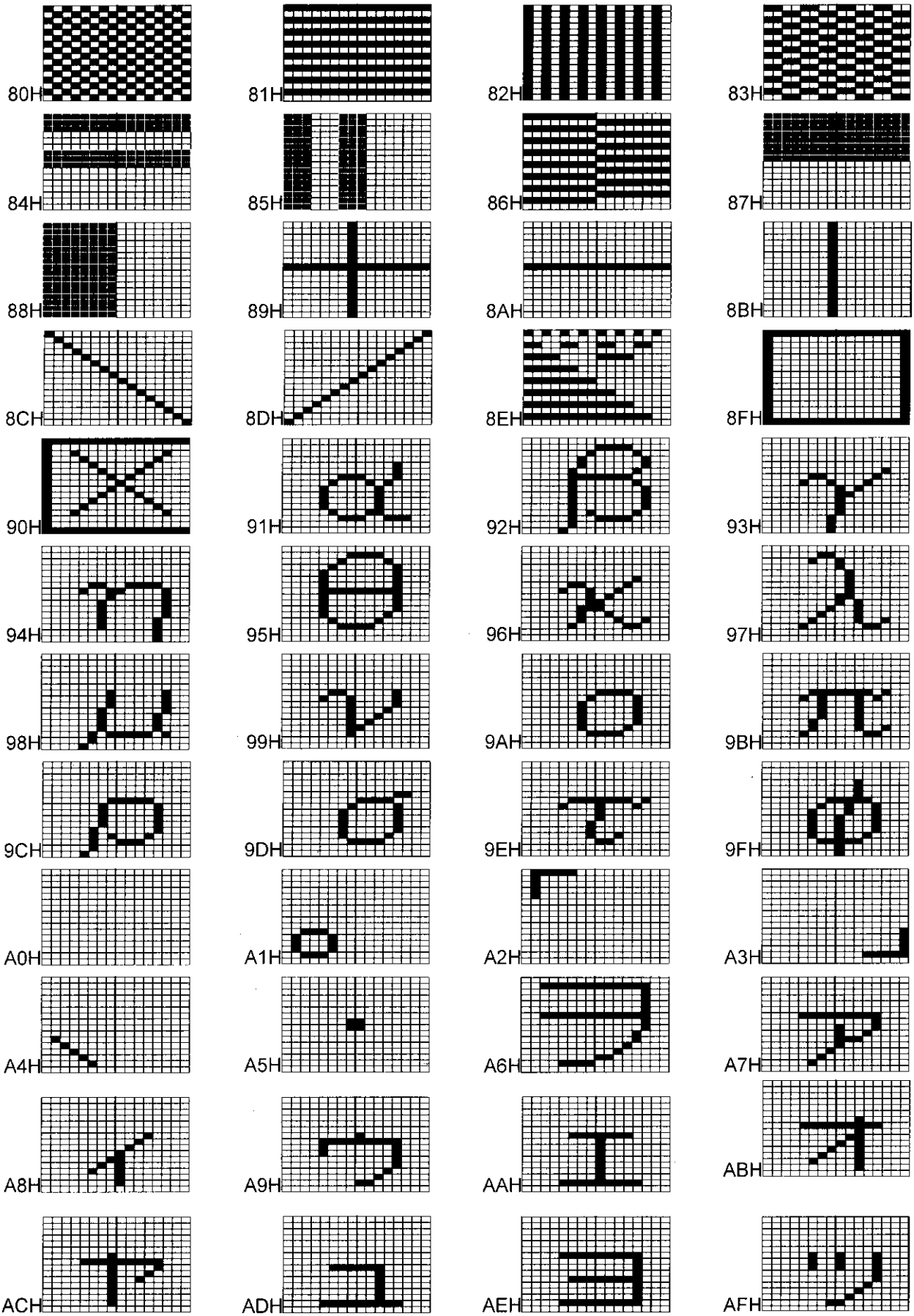
## ■ 16 × 16 character pattern table (1 of 4)



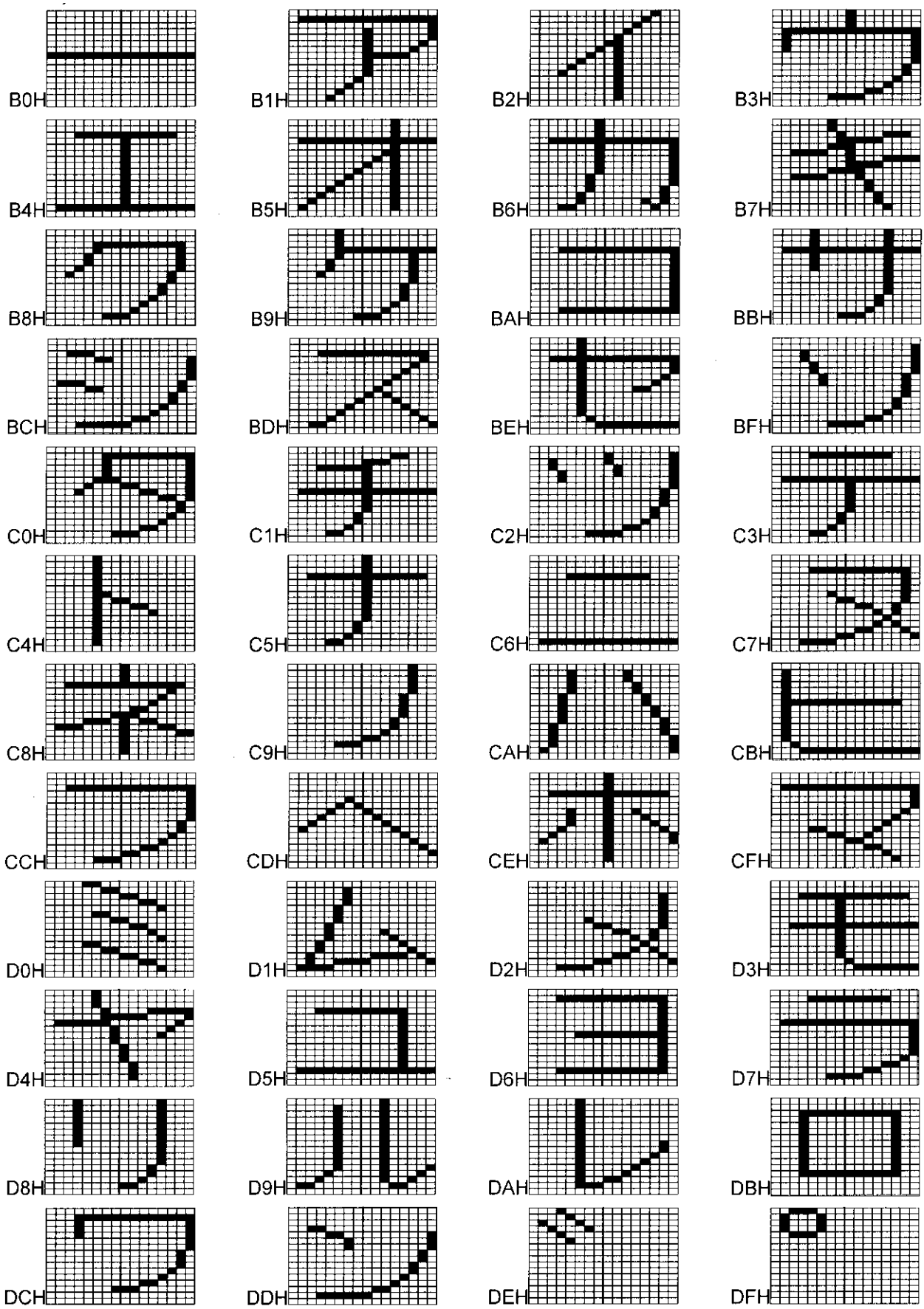
## ■ 16 × 16 character pattern table (2 of 4)



## ■ 16 × 16 character pattern table (3 of 4)



## ■ 16 × 16 character pattern table (4 of 4)



# 10.5 Tables of standard signals

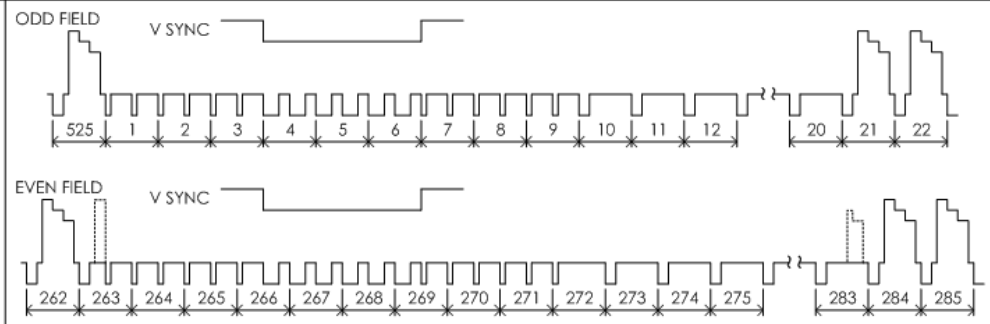
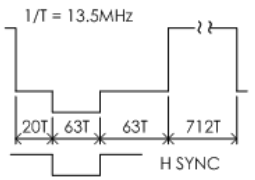
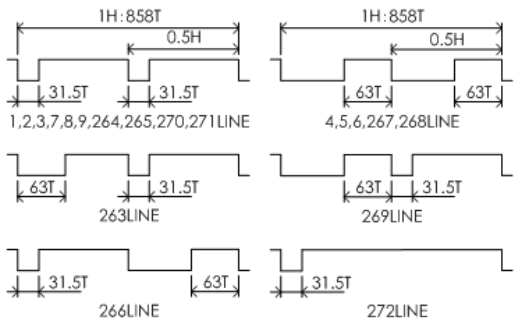
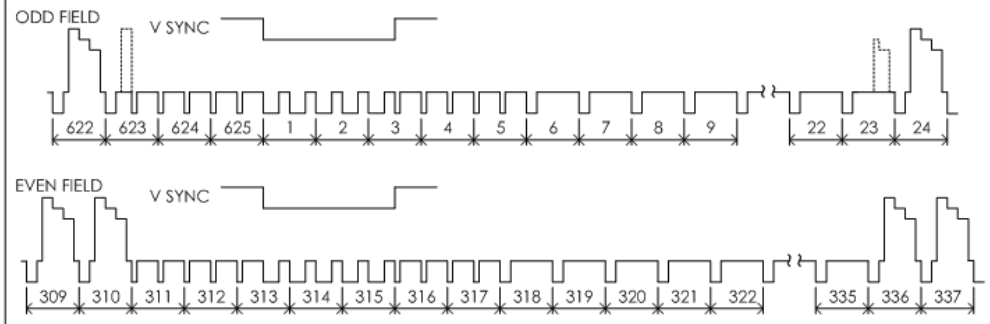
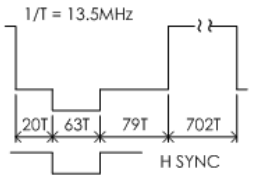
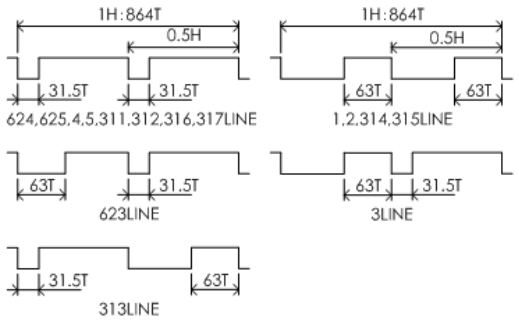
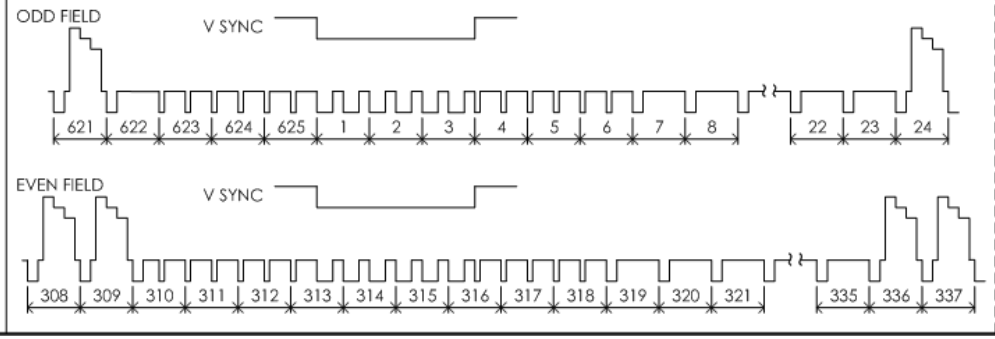
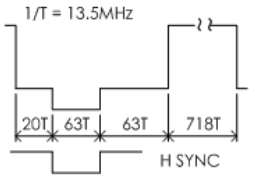
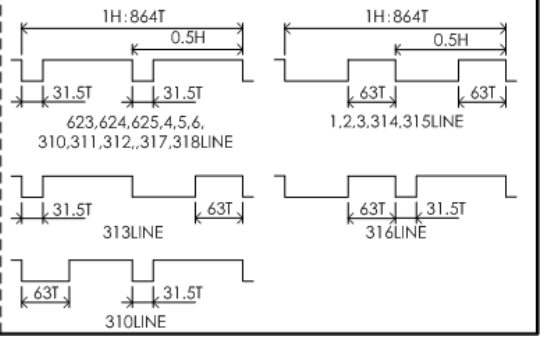
■ **Table of TV standard signals (1 of 2)**

| Signal format | Total no. of samples | Total no. of samples | Total no. of samples | Frame rate [Hz] | Scanning system | Subcarrier frequency [MHz] | Aspect ratio | Video level [mV] | Sync level [mV] | SETUP | Main countries where used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NTSC-J(Japan) | NTSC (RS-170A) | 712×484 | 858×525 | 60/1.001 | Interrace | 3.579545 | 4:3 | 714 | 286 | No | Japan |
| NTSC-M | NTSC | 712×484 | 858×525 | 60/1.001 | Interrace | 3.579545 | 4:3 | 714 | 286 | Yes | USA |
| NTSC-443 | NTSC | 712×484 | 858×525 | 60/1.001 | Interrace | 4.43361875 | 4:3 | 714 | 286 | Yes | |
| PAL-M | PAL | 712×484 | 858×525 | 60/1.001 | Interrace | 3.57561189 | 4:3 | 714 | 286 | Yes | Brazil |
| PAL (B/D/G/H/I/K) | PAL (BT.470-6) | 702×574 | 864×625 | 50 | Interrace | 4.43361875 | 4:3 | 700 | 300 | No | U.K, Germany |
| PAL-Nc | PAL | 702×574 | 864×625 | 50 | Interrace | 3.58205625 | 4:3 | 700 | 300 | No | Argentina |
| 483p (NTSC-PROG) | SMPTE293M | 720×483 | 848×525 | 60/1.001 | Progressive | - | 4:3 | 700 | 300 | - | - |
| 576p (PAL-PROG) | BT.1358 | 720×574 | 864×625 | 50 | Progressive | - | 4:3 | 700 | 300 | - | - |

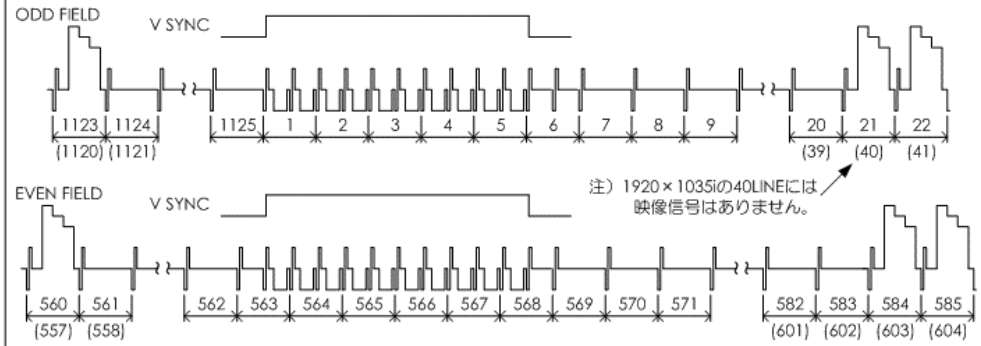
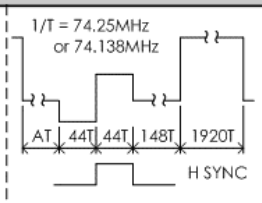
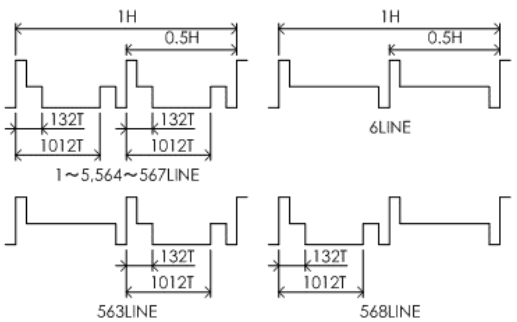
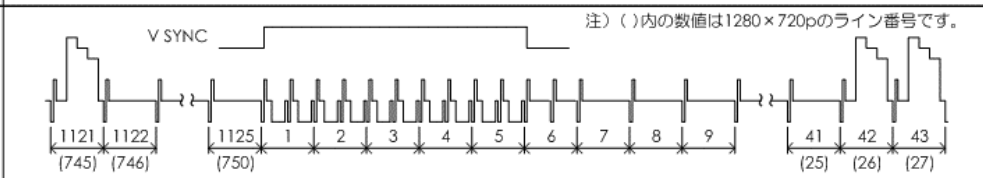
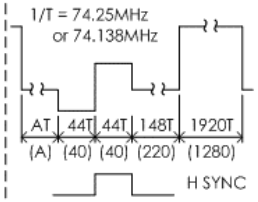
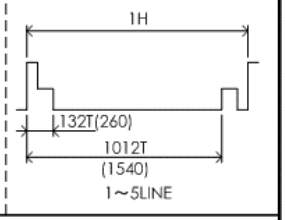
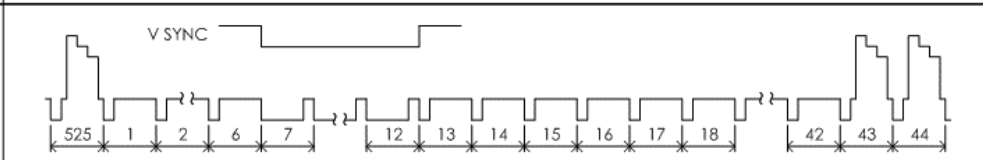
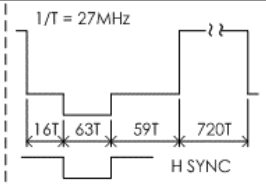
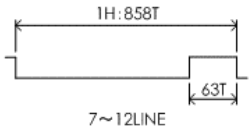
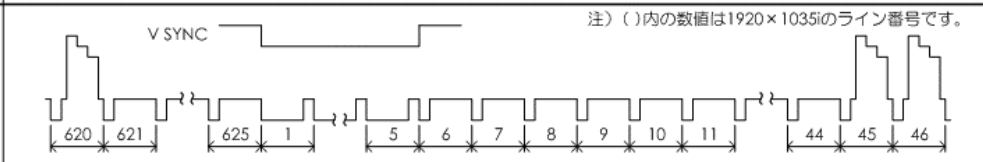
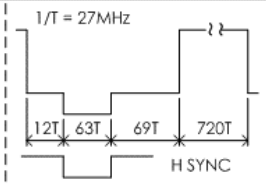
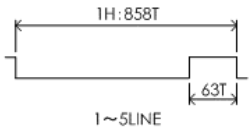
■ **Table of TV standard signals (2 of 2)**

| Signal format | Total no. of samples | Total no. of samples | Total no. of samples | Frame rate [Hz] | Scanning system | Subcarrier frequency [MHz] | Aspect ratio | Video level [mV] | Sync level [mV] | SETUP | Main countries where used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 720p | SMPTE296M | 1280 × 720 | 1650 × 750 | 60 | Progressive | – | 16:9 | 700 | 300 | – | – |
| | | | 1650 × 750 | 60/1.001 | | | | | | | |
| | | | 1980 × 750 | 50 | | | | | | | |
| | | | 3300 × 750 | 30 | | | | | | | |
| | | | 3300 × 750 | 30/1.001 | | | | | | | |
| | | | 3960 × 750 | 25 | | | | | | | |
| | | | 4125 × 750 | 24 | | | | | | | |
| | | | 4125 × 750 | 24/1.001 | | | | | | | |
| 1035i | BTA S-001A | 1920 × 1035 | 2200 × 1125 | 60 | Interlaced | – | 16:9 | 700 | 300 | – | – |
| | | | | 60/1.001 | | | | | | | |
| 1080i | SMPTE274M | 1920 × 1080 | 2200 × 1125 | 60 | Interlaced | – | 16:9 | 700 | 300 | | |
| | | | 2200 × 1125 | 60/1.001 | | | | | | | |
| | | | 2640 × 1125 | 50 | | | | | | | |
| 1080p | SMPTE274M | 1920 × 1080 | 2200 × 1125 | 60 | Progressive | – | 16:9 | 700 | 300 | | |
| | | | 2200 × 1125 | 60/1.001 | | | | | | | |
| | | | 2640 × 1125 | 50 | | | | | | | |
| | | | 2200 × 1125 | 30 | | | | | | | |
| | | | 2200 × 1125 | 30/1.001 | | | | | | | |
| | | | 2640 × 1125 | 25 | | | | | | | |
| | | | 2750 × 1125 | 24 | | | | | | | |
| | | | 2750 × 1125 | 24/1.001 | | | | | | | |

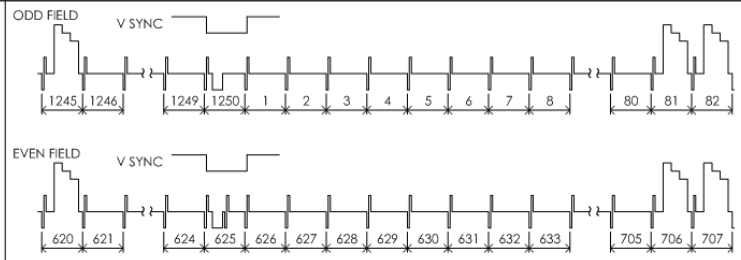
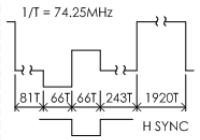
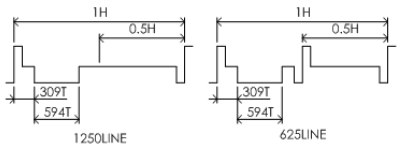
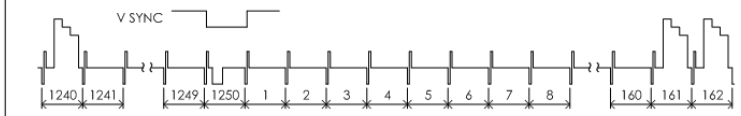
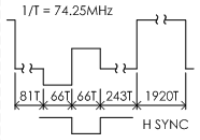
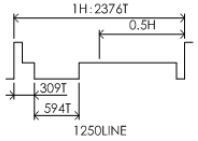
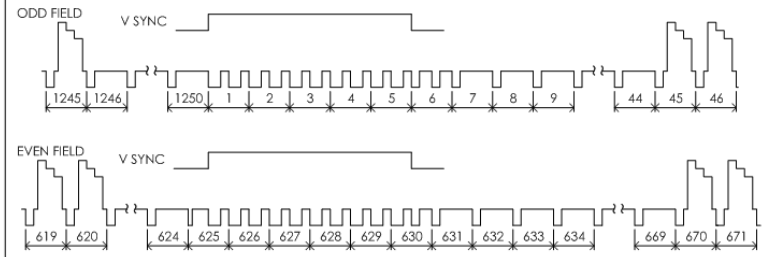
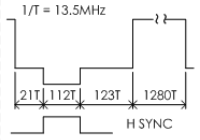
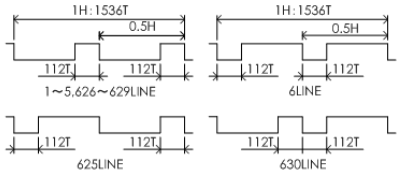
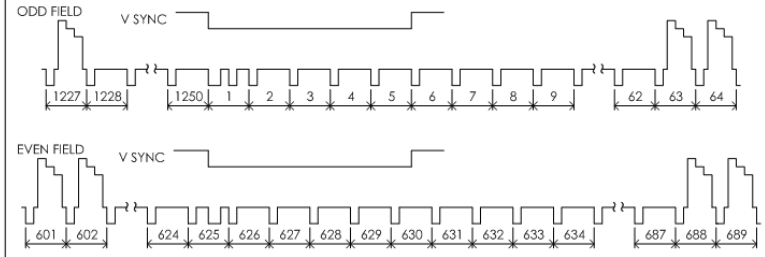
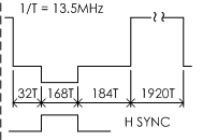
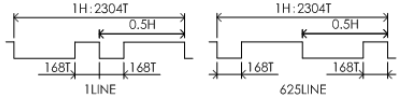
■ **Table of TV standard signal timing waveforms (1 of 3)**

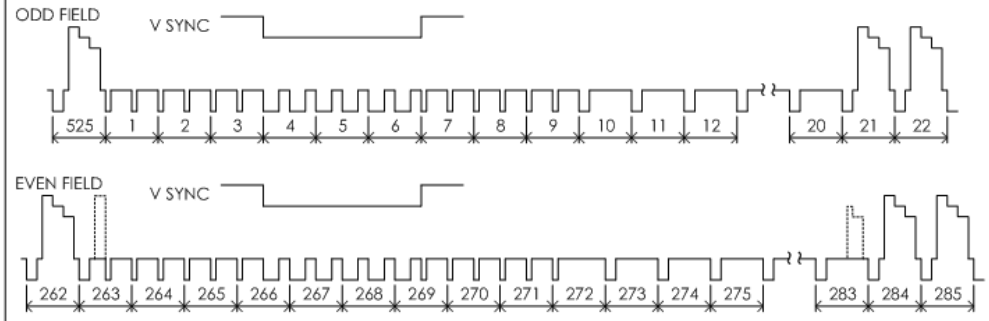
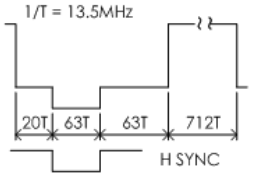
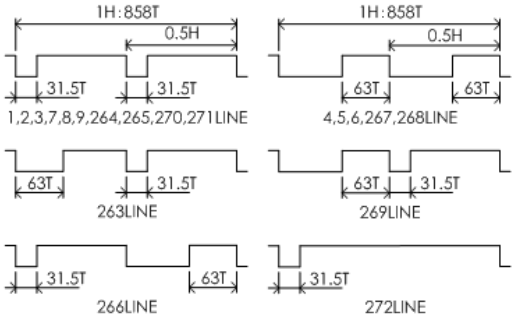
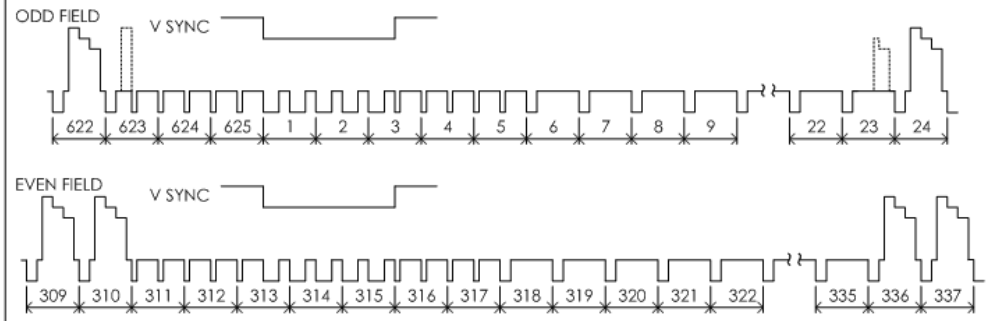
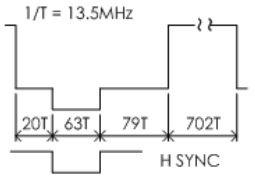
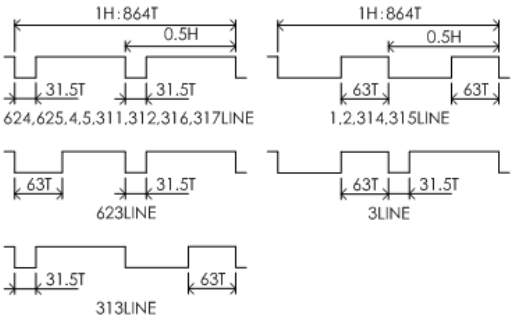
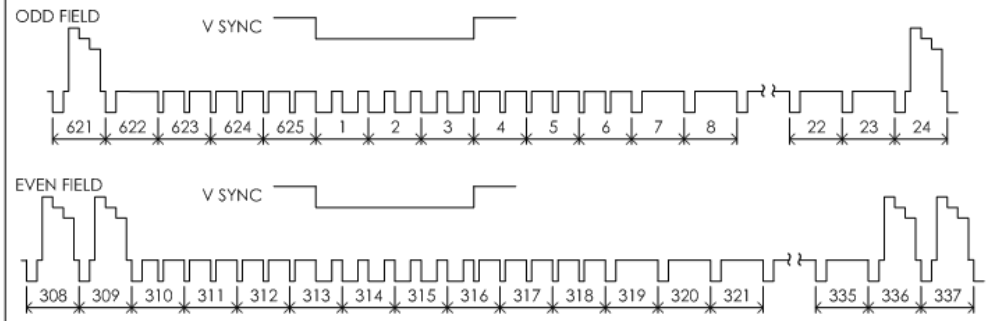
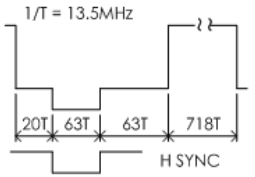
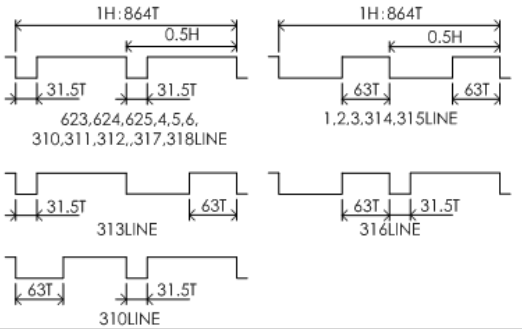
| 信号 | 同期信号波形 | アクティブライン | 垂直ブランキング　T：1dot幅 |
|---|---|---|---|
| **NTSC-J**<br>**NTSC-M**<br>**NTSC-443**<br>**PAL-M**<br>**PAL-60** |  |  |  |
| **PAL-**<br>**B/D/G/H/I/K**<br>**PAL-Nc**<br>**SECAM** |  |  |  |
| **PAL-N** |  |  |  |

■ **Table of TV standard signal timing waveforms (2 of 3)**

| 信号 | 同期信号波形 | アクティブライン | 垂直ブランキング　T：1dot幅 |
|---|---|---|---|
| **1080i**<br>**1035i** |  |  <br>Frame Rate / AT<br>60/59.94 / 44T<br>50 / 484T |  |
| **1080p**<br>**720p** |  |  <br>Frame Rate / AT (1080p / 720p)<br>60/59.94 / 44T / 70T<br>50 / 484T / 400T |  |
| **720x483p**<br>**(NTSC-P)** |  |  |  |
| **720x576p**<br>**(PAL-P)** |  |  |  |

## ■ Table of TV standard signal timing waveforms (3 of 3)

| 信号 | 同期信号波形 | アクティブライン | 垂直ブランキング　T：1dot幅 |
|---|---|---|---|
| **1080i SMPTE-295M（中国）** |  |  |  |
| **1080p SMPTE-295M**<br>アナログ出力のみ対応 |  |  |  |
| **1152i (Australlian)** |  |  |  |
| **1080i(1250) (Australlian)** |  |  |  |

| 信号 | 同期信号波形 | アクティブライン | 垂直ブランキング T：1dot幅 |
|---|---|---|---|
| NTSC-J<br>NTSC-M<br>NTSC-443<br>PAL-M<br>PAL-60 |  |  |  |
| PAL-<br>B/D/G/H/I/K<br>PAL-Nc<br>SECAM |  |  |  |
| PAL-N |  |  |  |

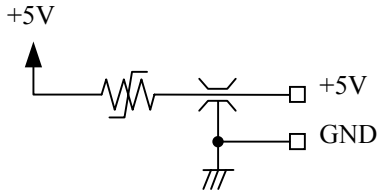
# 11 Restrictions

## 11.1 Maximum Currency for DDC Power

This product can supply power for DDC lines from each output.
The maximum currency for the DDC line is as follows:

- HDMI output / 0.5A for each channel
- Analog output / 0.5A from VGA output

The DDC supply voltage is output as shown in the figure below.




**DDC power supply output circuit**

The voltage is as follows:

- HDMI, Analog(DSUB) output / 5V (fixed)

**CAUTION**

- The DDC power supply incorporates an overcurrent protection device, but do not use a current which exceeds the rating.
- Do NOT supply power to the DDC power supply from the device connected to the VG-882-A. If such the voltage of such a power supply is connected, both the VG-882-And the connected device may fail.

# 12 LIST OF ERROR MESSAGES

## 12.1 Media-related error

| Code (HEX) | Error message | Description |
|---|---|---|
| 217 | Flash ROM(User) Full | There is not enough free space in the internal memory. |
| 228 | No CF-Card | The CF card has not been inserted. |
| 229 | CF-Card Unformatted | The CF card has not been formatted. |
| 22A | CF-Card Full | There is not enough free space on the CF card. |
| 22C | OPT Data File Error | Error in the optional pattern data. |
| 22F | Image Data File Error | Error in the image data. |

## 12.2 General error

| e (HEX) | Error message | Description |
|---|---|---|
| | 'H-Timing DotClock' Over Limit | Dot clock in the horizontal timing data is outside the setting range. |
| | 'H-Timing Frontp' Over Limit | Frontp in the horizontal timing data is outside the setting range. |
| | 'H-Timing HD' Over Limit | HDstart+HDwidth in the horizontal timing data is outside the setting range. |
| | 'H-Timing Period' Over Limit | Period in the horizontal timing data is outside the setting range. |
| | 'H-Timing Disp' Over Limit | Disp in the horizontal timing data is outside the setting range. |
| | 'H-Timing Sync' Over Limit | Sync in the horizontal timing data is outside the setting range. |
| | 'H-Timing Backp' Over Limit | Backp in the horizontal timing data is outside the setting range. |
| | 'H-Timing Blanking' Over Limit | Blanking in the horizontal timing data is outside the setting range. |
| | H-Frequency Over Limit | The horizontal sync frequency in the horizontal timing data is outside the setting range. |
| | 'H-Timing' Data Error | Error other than those described above in the horizontal timing data. |
| | 'Output' Data Error" | Error in the output condition data. |
| | 'Character' Data Error" | Error in the character pattern data. |
| | 'Cross Hatch' Data Error" | Error in the crosshatch pattern data. |
| | 'Dot' Data Error" | Error in the dot pattern data. |
| | 'Circle' Data Error" | Error in the circle pattern data. |

| Code (HEX) | Error message | Description |
|---|---|---|
| 315 | 'Burst' Data Error" | Error in the burst pattern data. |
| 316 | 'Window' Data Error" | Error in the window pattern data. |
| 317 | 'Color Bar' Data Error" | Error in the color bar pattern data. |
| 318 | TERMINAL) Parameter Error | Error in a parameter in the terminal mode. |
| 319 | TERMINAL) Data Error | Error in the data in the terminal mode. |
| 31B | 'Video/Setup/Sync Level' Error | The video level (Video), setup level (Setup) and sync signal level (Sync) are outside the setting range. (Setting range: [Video ≥ Setup] and [Video ≥ Sync] and [Video ≥ (Setup + Sync)]) |
| 31E | TERMINAL) Communication Timeout | Time-out has occurred in the data during communication in the terminal mode. |
| 31F | TERMINAL) Undefined Command | An undefined command was received in the terminal mode. |
| 321 | 'Program No.' Error" | Error in the program number. |
| 322 | 'Group No.' Error" | Error in the group number. |
| 323 | 'Character Code' Error" | Error in a user character code. |
| 32B | 'OPT No.' Error" | Error in the optional pattern number. |
| 32D | OPT Data File Not Found" | The optional pattern has not been registered. |
| 32E | 'Image No.' Error" | Error in the image pattern number. |
| 330 | Image Data File Not Found" | The image pattern has not been registered. |
| 333 | CURSOR Not Selected | The cursor pattern has not been selected (when SP-8870 CurTool is used). |
| 338 | 'Gray Scale' Data Error | Error in the gray scale pattern data. |
| 339 | 'OPT/Image' Data Error" | Error in the optional pattern or image pattern data. |
| 33B | 'Cursor' Data Error | Error in the cursor pattern data. |
| 33C | 'Program Name' Data Error | Error in the program name data. |
| 33D | '□ × [ABC] Color' Data Error | Error in the □ × [ABC] color data. |
| 33E | 'Action' Data Error" | Error in the action data. |
| 340 | 'V-Timing Total' Over Limit | Total in the vertical timing data is outside the setting range. |
| 341 | 'V-Timing Disp' Over Limit" | Disp in the vertical timing data is outside the setting range. |
| 342 | 'V-Timing Sync' Over Limit | Sync in the vertical timing data is outside the setting range. |
| 343 | 'V-Timing Backp' Over Limit | Backp in the vertical timing data is outside the setting range. |
| 344 | 'V-Timing Frontp' Over Limit | Frontp in the vertical timing data is outside the setting range. |
| 345 | 'V-Timing Blanking' Over Limit | Blanking in the vertical timing data is outside the setting range. |
| 346 | V-Frequency Over Limit | The vertical sync frequency in the vertical timing data is outside the setting range. |

| Code (HEX) | Error message | Description |
|---|---|---|
| 348 | 'V-Timing EQP-Fp' Over Limit | EQP-FP in the vertical timing data is outside the setting range. |
| 349 | 'V-Timing EQP-Bp' Over Limit | EQP-BP in the vertical timing data is outside the setting range. |
| 34A | 'V-Timing' Data Error | Error other than those described above in the vertical timing data. |
| 34E | DDC2 Line Error | ACK was not received in DDC2. |
| 350 | Macrovision Not Supported | An IC supporting Macrovision has not been installed in the unit. |
| 352 | EDID Header Error | Error in the EDID header. |
| 353 | EDID Check Sum Error | EDID checksum error. |
| 354 | EDID Header & Check Sum Error | Errors in both the EDID header and checksum. |
| 355 | User YPbPr Coefficient Error | Error in the color difference coefficients. |
| 360 | Image License Error | The image data license has not been supplied. |
| 361 | Data File Not Found | The data (other than the optional pattern and image data) cannot be found. |
| 362 | Copy Condition Error | ・The copy source data and copy destination data are identical.<br>・ The number of copy source data and number of copy destination data are different. |

## 12.3 HDCP-related error

| Code (HEX) | Error message | Description |
|---|---|---|
| 403 | HDCP) Transmitter KSV Error | KSV of the transmitter does not contain twenty '0's and '1's. |
| 404 | HDCP) Receiver KSV Error | KSV of the receiver does not contain twenty '0's and '1's. |
| 405 | HDCP) Link Check Error | During initial validation, the values did not match (R0 ≠ R0'). |
| 406 | HDCP) Encryption Error | Encryption was not completed. |
| 407 | HDCP) Hot Plug Error | The device to be connected is not connected. |
| 408 | HDCP) Ri Ready Error | The ready bit of the receiver was not set high. |
| 412 | HDCP) I2C Line Error | The I2C line is not working properly. |
| 414 | HDCP) Receiver Not HDMIMode | The connected device (receiver) was not set to the HDMI mode when the HDCP version was identified as 1.1 as a result of HDCP version:1.1 or HDCP version: EDID check. |
| 415 | HDCP) Ri NG | The values of Ri and Ri' do not match. |
| 416 | HDCP) FIFO Ready Time-out | FIFO Ready fails to occur within restricted time limit. |
| 417 | HDCP) DEPTH Error | The depth number has exceeded '7'. |
| 418 | HDCP) DEVICE_COUNT Error | The count number has exceeded '127'. |
| 419 | HDCP) List Error (V'!=V) | The values of V and V' do not match. |

## 12.4 User-generated optional pattern-related error

| Code (HEX) | Error message | Description |
|---|---|---|
| 501 | OPT Program Not Found | The user-generated optional pattern is not found. |
| 502 | Variables Stack Error | Variable stack error. |
| 503 | Register Stack Error | Register stack error. |
| 504 | Call Stack Error | Function stack error. |
| 505 | Illegal Instruction Code | Illegal instruction code. |
| 506 | Divide by Zero | An attempt was made to divide a number by zero. |
| 539 | OPT-USER License Error | The user-generated optional pattern license has not been supplied. |

VG-882-A Instruction Manual

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